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VOLUME 127, NO. 15 OCTOBER 7, 1948

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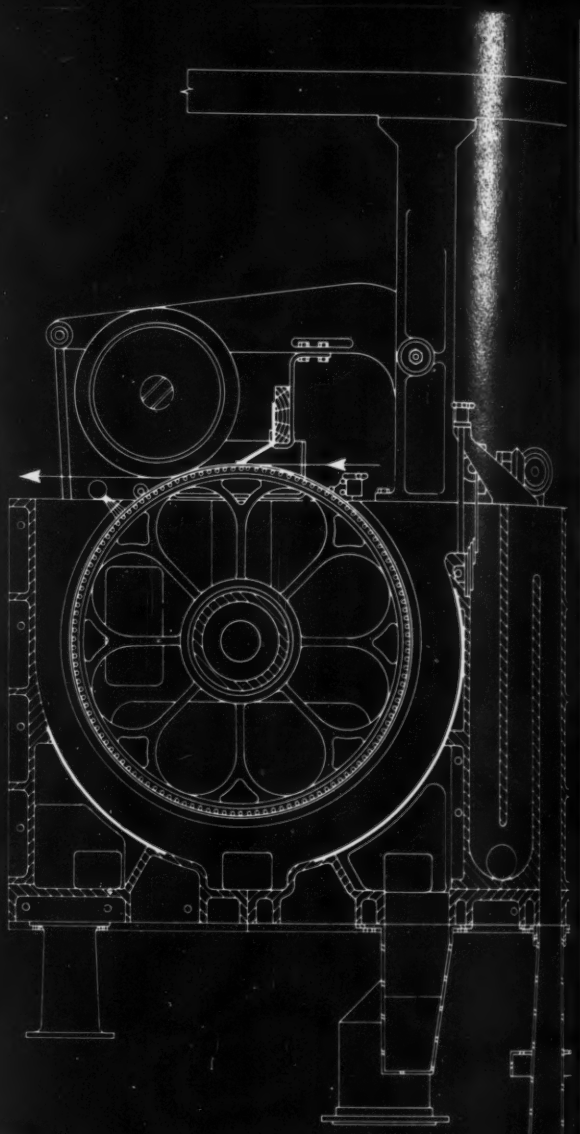

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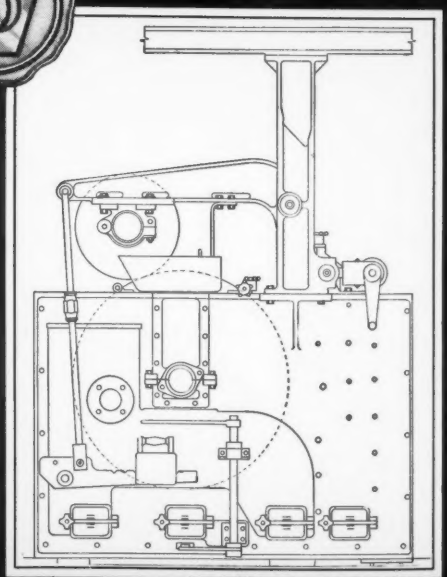

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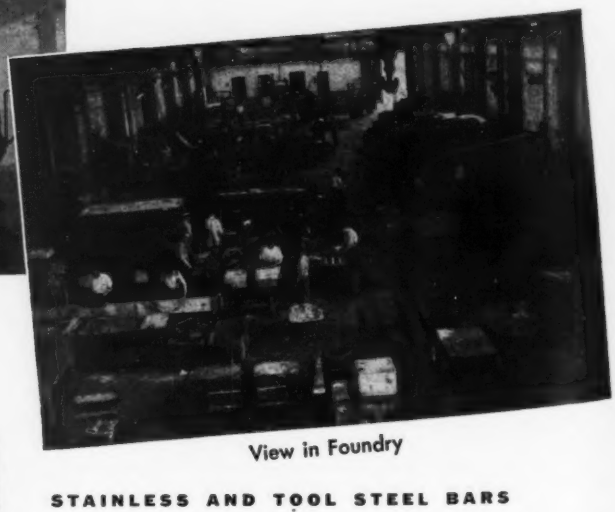

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Paper TRADE JOURNAL
Reg. U.S. Pat. Off.
OCT. 7, 1948
VOL. 127, NO. 15

Northwestern Division of Superintendents Ass'n.

Fall Meeting Attracts Heavy Registration

M. N. Taylor delivering address "Future Pulpwood for Wisconsin Mills". To his right (pipe in mouth) is S. E. Ekman of the Rhinelander Paper Co., retiring chairman of the Northwestern Division of the Superintendents Ass'n. To Mr. Taylor's left is, Harry E. Weston, associate secretary-treasurer of the National organization.

MERRILL, Wis.—The fall convention of the Northwestern Division of the American Pulp & Paper Mill Superintendents Ass'n. at Badger Hotel, September 24-25, turned in a registration of 150 persons.

The program of September 24 included a joint luncheon at noon, a professional meeting during the afternoon, and a joint dinner party in the evening. The morning of September 25 was given over to a business meeting. There was a men's luncheon at noon; a golf tournament for the men during the afternoon, and a dinner dance in the evening.

Officers elected for the ensuing year at the business meeting were: Frank X. Kreiling of the Thilmany Pulp & Paper Co., chairman; Laurin Sabatke of the Marathon Corp., first vice-chairman; and Mace V. Harris of the Northwest Paper Co., second vice-chairman.

Three trustees for the divisional group also were elected: Grover Keeth of the Marathon Corp., for one year; Charles H. Reese of the Nekoosa-Edwards Paper Co., for two years; and Edward E. Dendooven of the Northern Paper Mills, for three years.

Feature of the luncheon program of the first day was an address by M. N. Taylor, executive director of Trees for Tomorrow, Inc., on "Future Pulpwood for Wisconsin's Mills." In his address, Mr. Taylor reviewed the history of Trees for Tomorrow, Inc., highlighted its long-range program, and told of some of its accomplishments to date. His remarks were supplemented by a showing of a film that revealed in picture and in narration the work of Trees for Tomorrow.

The joint luncheon meeting concluded with the screening of a film of the Hercules Powder Co., Inc., which shows research activities of the laboratories of Hercules Powder.

Left to right: M. N. Taylor, executive director of Trees for Tomorrow, Inc.; D. B. Smith of the Ward Paper Co., secretary and treasurer, and C. G. MacLaren of the National Container Corp. of Wisconsin, vice-president.

At the professional meeting during the afternoon, two papers were presented. There also was an open forum. The first paper was given by M. W. Kyler, manager of the Wisconsin Valley Improvement Co. His subject was "The Role of Groundwater in Power Production." R. A. Nugent of the Nekoosa-Edwards Paper Co., presented the second paper. Using large-scale drawings, charts, etc., as visual aids in his presentation, Mr. Nugent described the new multistage bleaching plant at Nekoosa for bleaching sulphate pulp. The open forum was presided over by Mace V. Harris. Forum discussion was concentrated largely on two subjects. There was considerable comment on groundwater, stimulated by the paper by Mr. Kyler that had been presented earlier in the meeting. The other subject that brought forth discussion related to the shrinkage of pulpwood, specifically rough balsam, in storage. Experiences of several men were related. A test run at one mill showed a shrinkage of seven percent by volume from spring through the summer season, it was stated. Another participant mentioned that a test run is now under way in his mill to determine the shrinkage factor.

By way of diversion, a bit of magic by a professional magician was featured at the joint dinner party on September 24. Also, at this party, Harry E. Weston, associate secretary-treasurer of the National organization, presented a sketch of "Names To Remember." This was a historical novelty based on careers of men who have contributed to the development of the pulp and paper industry. Individual portraits of five men, one portrait at a time, were thrown on a screen and simultaneously with the showing of each portrait a biographical sketch of the person pictured was read. Three contestants from among the dinner guests vied with each other in identification of the portraits. Winning contestant was Harold Norseen of the

(Continued on page 20)

Left to right at speakers' table; A. E. Bachmann; R. G. Macdonald; A. Alfsen; Mrs. C. E. Flander; C. E. Flander; Olai Laurola; Harold E. Pratt; Mrs. A. P. Gregory; A. P. Gregory.

250 At TAPPI Mechanical Pulping Conference

Sponsored by Maine-New Hampshire Section

Approximately 250 members, wives and guests of TAPPI were registered at the Mechanical Pulping Conference, at Poland Spring House, Poland Spring, Maine, September 27-29.

September 27 Sessions

The conference was opened on September 27 by John L. Parsons, chairman of the Maine-New Hamshire Section of TAPPI, sponsor of the meeting. Dr. Parsons introduced W. F. Gillespie, president of TAPPI, who gave a short talk of welcome to the group.

R. M. Drummond of the International Paper Co., Glens Falls, N. Y., presided over the first session, which covered the subject of pulpwood. At this session a paper entitled "Wood, Its Preparation and Measurement" was presented by J. B. Jones of the Ontario Paper Co., Ltd.

The afternoon session on the opening day covered the manufacture of groundwood, with G. F. Witty of the Canada Paper Co. as chairman. The following papers were presented:

"Manufacture of Groundwood for Newsprint," by W. W. Holland of the Quebec North Shore Paper Co.; "Use of the Roberts Grinder for Manufacturing Different Grades of Groundwood," by Robert Magruder of the St. Regis Paper Co.; "Manufacture of Different Grades of Groundwood with Three-Pocket Grinders," by C. Ives Gehring of the Oswego Falls Corp., and "Instrumentation of the Groundwood Pulping Process," by J. N. Franklin of Bowater's Newfoundland Pulp & Paper Mills, Ltd.

The dinner that night in the main dining room of the Poland Spring House, was presided over by John L. Parsons. Mr. Parsons introduced the S. D. Warren Co. glee club., and John T. Gould, editor of the *Lisbon* (Maine) *Enterprise,* who gave a talk on government publications. Mr. Gould's talk was preceded and followed by glee club singing.

September 28 Sessions

W. W. Holland was chairman of the Screening, Thickening and Refining Session the morning of September 28, when the following papers were presented:

"Screening and Thickening Operations and White Water Systems," by J. Edwards of Price Brothers & Co., Ltd.; "Refining of Rejects," by C. T. Robinson of the Consolidated Paper Corp., Ltd.; "Grinding Room Operation and Its Relation to Paper Quality and Products," by R. T. Wetmore and L. W. Dunphy of the Anglo-Newfoundland Development Company, Ltd. Mr. Wetmore presented the paper.

The afternoon session, on bleaching, was conducted by F. C. Goodwill of the St. Regis Paper Co., Deferiet, N. Y., when the following papers were presented:

"Zinc Hydrosulphite Treatment of Groundwood," by I. H. Andrews of the Powell River Co., Ltd. This paper was read by J. H. Bardsley, St. Lawrence Paper Co.; "Bleaching Groundwood Pulp with Hypochlorite," by R. M. Kingsbury, E. S. Lewis, and F. A. Simmonds of the U. S. Forest Products Laboratory; "Peroxide Bleaching of Groundwood—Recent Developments and Commercial Status," by J. S. Reichert and Robert H. Pete of E. I. du Pont de Memours & Co. The paper was read by Dr. Reichert. "The Nature of the Color Changes in Groundwood," by J. A. Van den Akker, H. F. Lewis, G. W. Jones, and M. A. Buchanan of The Institute of Paper Chemistry. The paper was read by John Parsons.

At the banquet that evening John Parsons introduced W. F. Gillespie, who in turn introduced the guests at the speakers' table and then introduced the principal speaker, Robert E. Canfield, secretary-treasurer of the Groundwood Paper Manufacturers Ass'n., whose subject was "The Oldest Woodpulp and the Newest." Ed. note: Mr. Canfield's speech will be published in an early issue.

September 29 Sessions

The morning session on September 29 was conducted by A. E. Bachmann of the Missisquoi Corp. At it the following papers were presented:

"Control of Slime in Groundwood Mills," by R. B. Martin and J. Chamberlin of the Wallace & Tiernan Co., read by Mr. Martin; and "Micro-Organism Control in Mechanical Pulp and Its Relation to Paper Manufacture," by S. J. Buckman of the Buckman Laboratories, Inc.

September 29 Sessions

The final session of the conference, the afternoon of that day, devoted to the subject of Hardwoods, was under the chairmanship of George E. Shipman of the Donnacona Paper Co., Ltd. The following papers were presented:

"The Grinding of Hardwoods; Experiments on Eastern Cottonwood, Yellow Poplar, Sugar Maple, Black Tupelo, Paper Birch, and Sweetgum," by A. Hyttinen and E. R. Schafer of the U. S. Forest Products Laboratory, with Mr. Hyttinen reading the paper; and "Trends in Mechanical Pulping Operations," by Henry J. Perry of Frederic C. Clark Associates.

Among those registered at the conference were:

Abbott, C. W., Georgia Kaolin Co.; Adkins, Lawrence R., Pond's Extract Co.; Akerson, F. B., Brown Instrument Co.; Alfsen, A., Swedish Cellulose Co.; Allman, L., J. O. Ross Eng. Co.;

Left to right at speakers' table: Mrs. George Witty; Mrs. R. M. Drummond; R. M. Drummond; B. W. Burgess; Dr. J. Edwards; Robert E. Canfield; W. F. Gillespie; John L. Parsons.

Anderson, C. A., Brown Co.; Anderson, O. E., International Paper Co.; Anderson, T. C., Thunder Bay Paper Co.; Arpin, Ed. P., Jr., F. A. Leavens & Co.

Bachmann, A. E., Missisquoi Corp.; Baker, W. E. Byron, New York & Pennsylvania Co.; Bardsley, John H., St. Lawrence Paper Co.; Barrett, W. W., Carborundum Co.; Barrows, Bertram W., Gould Paper Co.; Battey, E. M., Infilco, Inc.; Bearse, G. D., St. Regis Paper Co.; Beeman, Lyman, St. Regis Paper Co.; Berg, Harvey, E., National Aluminate Corp.; Bingham, Richard T., TAPPI; Binns, F. W., Virginia Smelting Co.; Birchard, W. H., Fraser Companies, Ltd.; Blandy, D. E., American Wood Board Co.; Brandon, Ivan H., Rogers Fibre Co.; Brill, H. C., E. I. du Pont de Nemours & Co.; Buckman, S. J., Buckman Laboratories, Inc.; Burgess, B. W., Technical Section—CPPA; Burris, D. A., Canadian Ingersoll-Rand; Butterworth, J. F., Socony Vacuum Oil Co.

Cairnie, J. M., Ontario Paper Co.; Calkin, Frank G., Oronite Chemical Co.; Canfield, R. C., Groundwood Paper Mfr's., Assn.; Carpenter, Chas., New York & Pennsylvania Co.; Champion, C. H., R. T. Vanderbilt Co.; Chandler, John B., Bristol Co.; Clark, G. H., Price Bros. & Co., Ltd.; Comee, E. R., Pejepscot Paper Co.; Copeland, Wm. H., Norton Pulpstones; Cordes, O. C., Downingtown Mfg.; Cowie, N. C., Abitibi Power & Paper Co.; Cox, Creston J., St. Croix Paper Co.; Cuthbertson, A. M., Abitibi Power & Paper Co.

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Ingalls, E. P., S. D. Warren Co.; Ingraham, Harold G., Bird Machine Co.

Jenness, L. C., University of Maine; Jones, Nard, Pulp & Paper Magazine; Jeffery, C. J., Great Lakes Paper Co.; Jacobs, M., Chas. T. Main, Inc.; Jackson, P. Andrew, Pusey & Jones Corp.; Johnson, Roy N., Shartle Bros. Machine Co.; Junge, A. C., Clinton Industries, Inc.

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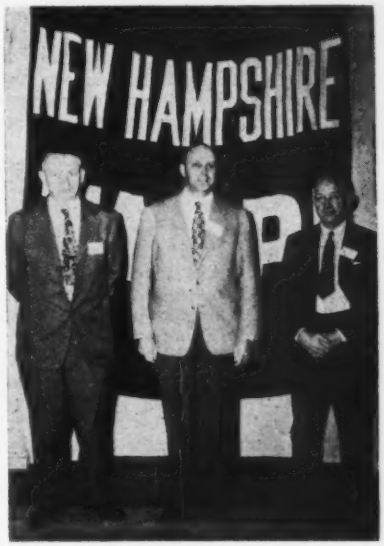
Neumann, P. F., Hercules Powder Co.; Nivison, Robert, Hollingsworth & Whitney Co.; Newell, Harry S., International Paper Co.; Niederauer, E. H., Mead Corp. (Escanaba Paper Co.).

O'Brien, J. J., Paper Mill News; O'Rourke, F. W., General Dyestuff Corp.; Overton, Timothy M., Castle & Overton, Inc.

Palmer, L. A., Donnacona Paper Co., Ltd.; Palsulski, Joseph V., International Paper Co.; Papoe, J. B., Ste. Anne Paper Co.; Parsons, John L., Hollingsworth & Whitney Co.; Parsons, S. R., Consolidated Water Power & Paper Co.; Pattison, T. E., Buckman Laboratories of Canada; Pierce, Leonard A., Jr., St. Regis Paper Co.; Pingrey, K. L., B-F-D Div. Diamond Match Co.; Perry, Henry J., Frederic C. Clark Associates; Perry, James H., Norton Co.; Phillips, Noel R., Hollingsworth & Whitney Co.; Porter, Richard W., Paper Industry & Paper World; Pratt, Harold E., Pejepscot Paper Co.; Pray,

(Continued on page 20)



Maine-New Hampshire Section TAPPI officers left to right: H. E. Pratt, secretary-treasurer; John L. Parsons, chairman, and A. P. Gregory, member of the Executive Committee.

Forest Products Division Economic Review

Excerpts from Department of Commerce, September, 1948

"Industry Report, Pulp and Paper"

Paper and board mills in general increased production in August following the seasonal low output in July when vacations and machinery overhauling are prevalent. August production is expected to be greater than in August a year ago, as has been the month-to-month situation this year as compared with identical months of 1947.

The aggregate capacity of the industry has increased materially from a year ago through the rebuilding of old equipment or the starting up of new pulp digesters and paper or board machines. Partly because of these new capacities in paper and board, the industry as a whole has produced substantially more tonnage than in 1947. Another factor has been the upward trend in the tonnage output per machine hour.

Commerce Field Offices have reported that a few high-cost small mills, some of which were brought into production during the war, have been closed in the past several months. Various circumstances account for the operating policies pursued by individual mills. As pointed out in previous *Pulp and Paper Industry Reports,* a number of mills not integrated with their own pulp production found that prices on European pulp were too high and curtailed on its purchase and consumption, limiting their operations in a number of cases to mostly the lower-priced domestic or Canadian market pulp. However, the large mass producing mills continue their normal policy of operating the full week.

During this same period, as analyzed in this report in past months, the demands for most grades of paper and board have leveled off and the "pressure to buy" definitely slackened. In recent weeks, even the supply-demand picture on kraft paper products has eased considerably, according to Commerce Department Field Office reports. In the case of newsprint, which also still continues in short supply, there was likewise some apparent easing in demand as witnessed by substantial drops in spot market newsprint prices. Trade press reports point to spot newsprint selling currently in the United States for $160 to $170 per short ton against $200 to $300 some months ago.

However, for most grades of paper and board, the supply came into approximate balance with demand some time since the turn of the year and the majority of manufacturing paper mills have found it possible to go off their customer allocation systems with most remaining mills reported going off in September. It should be noted that the July-August short supply condition on some items in the West Coast area, brought about by the flood-closed mills in June, is an exception to the national picture and one which is expected to rectify itself quickly since those mills have been back into production since July.

INDEX NUMBERS

Wholesale Prices of Wood Pulp (1926 = 100)

Year (Annual Averages)	[1]*Wood pulp*	*Mechanical*	*Soda, bleached*
1926	100.0	100.0	100.0
1927	92.4	93.2	91.9
1928	88.7	89.5	84.1
1929	88.4	89.9	82.1
1930	86.2	93.4	77.0
1931	79.4	93.6	75.2
1932	64.0	69.7	61.0
1933	65.4	70.6	58.1
1934	78.2	81.7	64.9
1935	72.2	68.1	64.9
1936	75.2	69.2	67.4
1937	116.8	89.2	78.9
1938	85.6	73.8	70.7
1939	73.6	76.8	67.0
1940	112.2	110.1	80.1
1941	124.1	105.1	85.6
1942	128.7	109.9	85.6
1943	128.9	112.3	85.6
1944	138.9	121.0	92.5
1945	140.6	122.1	98.2
1946	155.3	141.9	108.0
1947	217.0	192.2	149.5
Year and Month			
1946			
January	140.6	122.1	98.6
February	140.6	122.1	98.6
March	140.6	122.1	98.6
April	141.7	130.0	98.6
May	154.1	141.7	109.0
June	154.1	141.7	109.0
July	154.1	141.7	109.0
August	154.1	141.7	109.0
September	165.6	152.7	118.2
October	169.4	156.3	121.3
November	173.1	156.3	121.3
December	178.5	171.2	130.4
1947			
January	199.0	189.2	141.4
February	200.4	189.2	142.7
March	201.7	189.2	142.7
April	218.4	189.2	142.7
May	223.4	198.5	150.0
June	222.8	201.5	152.4
July	222.3	194.2	152.4
August	222.0	189.2	152.4
September	222.0	189.6	152.4
October	224.2	190.5	153.7
November	222.3	190.5	155.7
December	223.5	194.9	155.7
1948			
January	236.0	200.1	163.8
February	238.9	201.5	168.6
March	238.9	201.5	168.6
April	238.9	201.5	168.6
May	238.9	201.5	168.6
June	238.9	201.5	168.6
July	238.9	201.5	168.6

[1] Wood pulp—weighted aggregate of four grades of wood pulp, namely: Sulphate (Kraft), northern, unbleached (B.L.S. Code 747.1); Sulphite, domestic, unbleached (B. L. S. Code 748.1); Groundwood (mechanical), No. 1, domestic and Canadian (B.L.S. Code 749.1); Soda, bleached, domestic (B.L.S. Code 750).

Note: Starting with January 1942, the B.L.S. has shown monthly dollar prices on a short ton basis on northern unbleached kraft pulp and on domestic unbleached sulphite pulp. However, comparable basic price data on these two grades are not available for the 1926 base period which accounts for no price indexes on a 1926 base being shown in above table.

Source: Bureau of Labor Statistics, U. S. Department of Labor.

Inventories of most grades and qualities of paper and board in the hands of wholesale distributors, converters, retailers and consumers are adequate, Commerce Field Offices report. In fact, in recent weeks, many holders of paper inventories are reported to have been anxious to reduce rather than add to stocks in view of the ability to place orders and obtain prompt delivery of desired items from most mills.

In previous issues, this report has set forth what appear to be basic underlying factors of the recent and present market position for paper, board and products. (In particular, the reports for March and May, 1948.) It should perhaps be stated again that the apparent leveling off in over-all paper and board demand may be explained in large measure by the leveling off of national purchasing power in terms of physical volume. Gross national product, which was at an annual rate of $244 billion in the first quarter of this year, advanced to $248 billion at an annual rate in the second quarter, a very small increase when compared to the rise since 1946 when G.N.P. was at an annual rate of $209 billion. But most notable has been the relative greater activity of the durable goods industries in comparison to 1947 as contrasted with the nondurable goods industries. This is true as it applies to both manufacturers' output and sales as well as to sales at retail stores. In other words, for every dollar of goods produced and sold, the percentage for durables has increased and the percentage for nondurables has decreased.

Because paper and board demand is influenced mostly by their use in packaging and distribution of nondurable goods, this trend seems to explain, to some degree, the leveling in paper demand. The situation is further explained by reference to personal consumption expenditures which increased from $172 billion in the first quarter of 1948 to $175 billion in the second quarter, which is a lower rate of expansion than occurred in 1947. Moreover, as just pointed out, consumers are spending a larger percentage of each dollar for durables, such as automobiles and homes. Furthermore, higher prices on various goods and services have meant that even by spending more dollars they have not been able to purchase in the aggregate significantly more goods or services. The *Midyear Economic Report to the President* shows that, in terms of constant 1947 dollars, per capita disposable personal income at annual rates in the second quarter of 1948 was $1,200, which was unchanged from the first quarter and only slightly higher than

in the second quarter of 1947. For the year 1947 it was about $1,200; for 1946 it was about $1,290; and for 1945 it was $1,325, in terms of constant 1947 dollars.

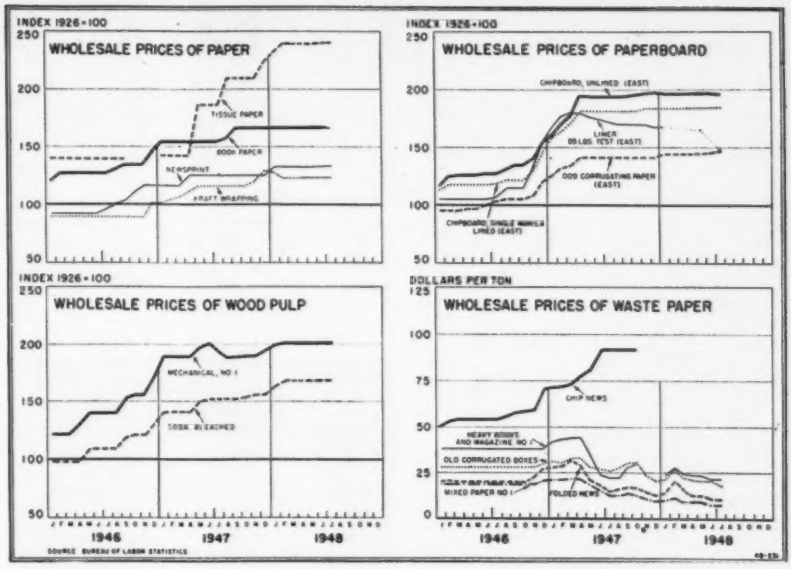
The general commodity price level has continued to edge higher notwithstanding the decline in crop prices resulting from actual or prospective bumper crops. The equivalent decline in the purchasing power of the dollar has been reflected back to manufacturers of many types of goods who, having increased production since the end of the war, now find they are producing goods in volumes equal to consumers' ability to purchase. Thus, there has been an equivalent leveling off in the output of such goods compared to the rapid rise in the production of such products since the end of the war. This has caused most such manufacturers and distributors to be more concerned with their competitive positions.

Most pulp and paper manufacturers, as well as their distributors and converters, are part of the segment of the nation's producers and distributors who have encountered, since the turn of 1948, such a leveling off in demand and sales. This development, as it has progressed, has been described in preceding issues of the *Pulp and Paper Industry Report* as a "catching-up" or a "readjustment" period. Now that most mills, converters and distributors have experienced a definite slackening in orders and satisfactory inventories in consumers' hands, there appears to be some serious thinking and analysis on the basic conditions underlying the present and prospective market. Practically all suppliers admit that order backlogs have diminished or completely vanished. On the other hand, there appears to be no apprehension as to a steady and good market for several months ahead. In fact, the majority of industry executives look for the normal autumn seasonal revival in the paper trade, but with more of a balance between production and consumption than has been the case since the early stages of the war.

The return of competitive conditions within the industry generally has brought renewed quality, service and price consciousness. At least one large manufacturer recently completed a large paper warehouse so as to be able to supply promptly many standard grades desired by customers.

The present general policy of most distributors and converters to hold down on further inventory accumulations in view of the current ability to purchase most desired items promptly is reported to have reminded some merchants of their anxiety of several months ago. Deliveries have been received recently on old orders which they had forgotten. As a result, more and more merchants are reviewing their existing orders on mills so as not to become over-stocked.

For the most part, it appears mills are offering higher quality goods with improved services at no increase in price. This form of competition has been evident for the last several months. The net result has been a narrowing of the profit margin of many mills, especially since most mills granted wage increases this year.



During August, prices on most grades of paper and board remained firm and steady, according to reports from Commerce Field Offices in various parts of the country. There were a very few instances of price reductions by mills and distributors which were counterbalanced by some price advances. In the case of advances on some items by some mills, running up to ten percent, it was pointed out that in most cases the mills concerned had not advanced their prices this past year as had been done by the majority of producers. A few instances were reported of anticipated price advances in September because of advancing costs.

The consensus appears to be that the paper, board and products market, with respect to supply, demand, inventories and prices, has now reached a level at which it will keep pace with the overall industrial and economic activity. Intensified sales and marketing efforts, coupled with the anticipated seasonal fall upswing in most lines of business, are expected to produce a highly satisfactory level of business for all segments of the industry for at least the remainder of this year.

In view of the general interest in price trends, the complete report provides most of the price indexes on pulp, paper, paperboard and products as compiled by the Bureau of Labor Statistics, United States Department of Labor, going back as far as 1926 wherever the data are available. As a means of serving a more useful purpose, comparisons are given with prices of all commodities and a few related products which are consumed in the manufacture of pulp and paper, such as coal, oil, chemicals.

A similar price index series on pulpwood is not available from the Department of Labor and, while Bureau of the Census reports for earlier years showed average pulpwood cost per cord, comparative current data are not available. It is generally known, however, that pulpwood costs have increased substantially above the average 1939 cost of $7.82 per cord for pulpwood consumed by the pulp industry, as reported by the Census Bureau for that year. This report does not intend to analyze, justify, or criticize price trends. The price index data, while publicly available from the Department of Labor, are not easily obtained in a composite presentation covering a long period of years for the various series.

Trade Practice Rules

NEW YORK—The Federal Commission was asked by the National Paper Trade Ass'n., on October 4 to take prompt action to promulgate Trade Practice Rules submitted last February for the Fine and Wrapping Paper Distributing Trade and the subject of a trade practice conference on April 5, in a resolution adopted by the NPTA executive committee at the Waldorf-Astoria on October 1 under the chairmanship of Ralph G. Luff, president of the Association.

Testing Paper Chutes

STOCKHOLM—Experiments with paper parachutes being conducted by the Swedish government, officials revealed on September 28, have caused considerable interest abroad. The 'chutes are fabricated by the Nissafors Mills, which has just received an order for 3,000 from the French army, for use in Indo-China.

Tall Oil for Germany

WASHINGTON — Authorization for procurement of crude tall oil, amounting to $670,000, for Bi-zonal Germany, was announced by ECA on September 30. The oil will be purchased in the United States.

Paper Men Lose Round In Power War

HOLYOKE, Mass.—Local paper manufacturers, fighting to preserve their century-old indentured water power rights on the Connecticut River and along Holyoke's three-level canal system, were dealt a major blow here on September 29, when Wilbur W. Gatchell, attorney attached to the Federal Power Commission's division of hydro-electric matters, expressed the opinion that the Holyoke Water Power Co., which represents the rights of the paper manufacturers in their battle against federalization of power, has no legal right to develop water power at the Holyoke dam.

The statement was made in a closed session between Mr. Gatchell and Thomas M. Crum, Jr., an FPC engineer, and the Board of Aldermen, who were scanning the technical phases of the Water Power Co., and the Municipal Gas and Electric Department applications filed with the FPC for a license to harness Connecticut River power here.

In affirming that the private utility has no rights along the river, Mr. Gatchell bolstered his contention with a passage from Section 7 of the Federal Power Act of 1940 that read: *"The commission shall give preference to an application by states and municipalities for power development, providing the same are deemed by the Commission equally well adopted to conserve and utilize in the public interest the water resources of a given region."*

Mr. Gatchell explained, however, that he was speaking solely as "a staff member of the Federal Power Commission." He said that in the event a federal license was given the municipal plant, there would be a just compensation given for the physical properties of the Water Power Co., eliminating all suggestions of confiscation; but that in the legal sense, because no ethical rights are involved, the private utility may be considered as "trespassers along the river."

It was pointed out, however, that "much water will pass over the dam" before a federal license is awarded either of the contesting parties. A decision in favor of either applicant is subject to judicial review, it was pointed out.

D. J. ERIKSON

—who started his career with the Hagan Corp., Pittsburgh, Pa., as a draftsman more than three decades ago, has been elected president of that firm and its three subsidiary companies, Calgon, Inc., Hall Laboratories Inc., and the Buromin Co. . . . Mr. Erikson succeeds J. M. Hopwood, who was elected to the new position of chairman of the board of directors of the Hagan group.

It appeared the sentiment of the two FPC representatives that there is a waste of power here. In their books, the judgment is confirmed by the application for redevelopment lodged by the Water Power Co., and in the content of the municipal petition. They stressed that the "essence of the FPC's existence is to guarantee that natural resources are developed to their fullest extent and a license to fulfill this aim should be given the agency most qualified."

Several aldermen fired questions at the federal agents. Alderman Romeo W. Beaudry, chairman of the Power and Light Committee, sparked the panel discussion when he asked: "Have studies of the river been made by Army engineers, and is it true that Army engineers have information in addition to that acquired by the FPC?" To this, Mr. Gatchell answered in the affirmative and suggested that their findings might be available in the Boston offices of the Engineer Corps.

Alderman John F. Sullivan then asked "to what extent they (Messrs. Gatchell and Crum) were authorized to speak for the FPC." They replied that they were staff members assigned to outline the technical phases of the petitions pending.

Mr. Sullivan, probably referring to the indentured rights of the paper mills, then asked: "What is the status of water rights on the Connecticut River here without a federal license?" He was told: "There is no such thing as a water right without a federal license."

Argentine Newsprint Cut

BUENOS AIRES—The government and the majority of Argentine newspaper and magazine publishers agreed tentatively on September 27 to cut newsprint consumption by 50 per cent, in an effort to solve the shortage.

CELEBRATING THOMAS FLOYD SMITH'S EIGHTIETH BIRTHDAY

THOMAS FLOYD SMITH, president of the Louisville Paper Co., Louisville, Ky., was honored on his eightieth birthday with a dinner tendered to him by 50 of his associates in the company's office, at the Pendleton Club on August 31. . . The veteran paper merchant founded the company in 1896. . . It operates branches in Memphis and Knoxville, Tenn., and Evansville, Ind.

Clean, smooth, shining calender rolls and supercalender rolls and dryers and press rolls are more than a matter of good housekeeping in the machine room. They are a positive factor in the making of *better paper and more of it per day at lower cost per ton.*
Vickery Doctored rolls are continuously in top shape to do their best work because Vickery Doctors are carefully engineered and applied to each and every roll.
SEE HOW IT SHINES!
It's Vickery Hi-Flex Doctored
BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS

Tinker Addresses Napkin and Tissue Men

BEDFORD SPRINGS, Pa. — Addressing the Paper Napkin Ass'n. and the Tissue Ass'n. at their joint meetings here on September 27-30, E. W. Tinker, executive secretary of the American Paper & Pulp Ass'n., said in part:

"As usual, in the interest of clarification, I am glad to have an opportunity to discuss with you affairs and conditions affecting the welfare of the pulp and paper industry. Currently, there are several.

Capehart Committee

"First, because I understand it has been or will be subject to consideration by you, I would like to review for you the steps that have been and are taken in response to requests from the Senate Subcommittee of the Interstate and Foreign Commerce Committee, of which Senator Capehart is chairman. . . . Business and industry owe it to the committee and to the Congress to supply all information needed to clarify the situation in order to assure judicial legislative action. The pulp and paper industry will wish to do its part.

"The committee has appointed an Advisory Council, representing industry, agriculture, labor and business, in all their ramifications. The pulp and paper industry has a representative on this Council which met in Washington on September 15 and will, I understand, meet again in Chicago in October. . . . One meeting has already been held to develop an outline for a brief that might be presented in behalf of the pulp and paper industry and we are now engaged in the development of this brief in the preparation of which we hope to have the cooperation of all of the member divisions in the American Paper and Pulp Ass'n. . . .

"It is our intention to transmit to the industry data that have been accumulated covering the viewpoints of individual companies with the thought that each company concerned with this problem, and vitally concerned, may wish to express to its congressional representatives its view of the situation that has been brought about. . . .

Defense Program

"I know that you have been vitally concerned with moves that may be made in connection with the National Defense program, particularly the extent of military requirements that may represent a drain upon your output affecting civilian needs. Up to this time where stringencies have arisen, because of a sharp increase in the military requirements, it is my understanding that the Government's needs have been met through a voluntary allocation program authorized by law. It is to be hoped that other measures beyond this program will not be necessary.

"The Forest Products Division and the Pulp and Paper Section of that Division, which will be organized under the National Security Resources Board, has not as yet been organized. This delay is unfortunate because there is no question but that planning is being done which inevitably would involve the activities of the Forest Products Division and the Pulp and Paper Branch. In addition, it is presumed that the National Security Resources Board, created by law, would scrutinize the requirements set forth by the War Munitions Board with some consideration of the effect of these requirements upon the civilian economy. I believe a Chief of the Forest Products Division has been selected. Three men were recommended by the forest products industries and our industry has also recommended an individual to head up the Pulp and Paper Branch. A letter has been directed to the National Security Resources Board urging prompt action in perfecting the organizations with which we are concerned. . . .

E. W. TINKER

Bay Ridge Case

"We have been much concerned with our inability to clarify for the industry the effects of the Supreme Court decision in the Bay Ridge case, which decision was rendered on June 8. As you well know, this case affecting the longshoremen directly involved a payment of overtime on overtime and seriously affected conditions in most paper mills. This entire matter was discussed with the Wage and Hour Division in Washington and an application made for an extension of the exemption period because no one knew how to apply the decision as rendered. We received belated notification on September 14 that the decision would not be enforced by the Wage and Hour Division until some indefinite date in the future. We are sending to the industry this week answers to some 18 questions propounded by our Industrial Relations Committee during the meeting in Washington.

"More specifically, 20 questions were asked and 18 answers given. The two remaining questions involving call-in time and wire-change time were not answered but the Wage and Hour Division has indicated that given further time for consideration, we will ultimately receive answers. . . .

Reciprocal Trade Agreements

"Next year the new Congress will of necessity give consideration to a further extension of the Reciprocal Trade Agreement Act. . . . If things continue as they are there is little question but that an attempt will be made to extend the Act and possibly expand it. . . .

Industry's Economic Position

"I should like to discuss with you to some extent the economic position of the pulp and paper industry because I think it desirable that every company executive give this question most serious consideration. . . .

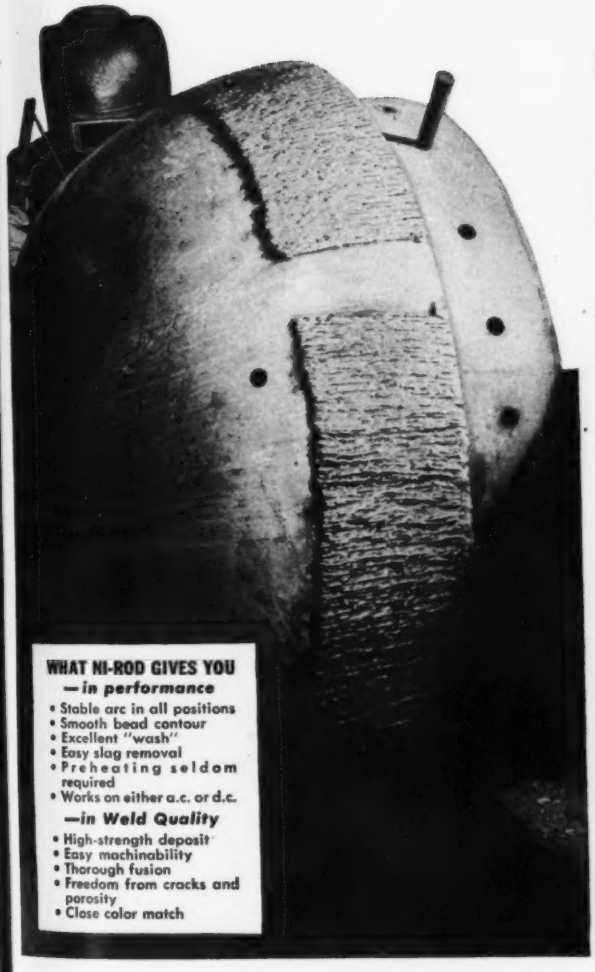
"There has been one major misconception prevalent not only within the industry but within banking circles and I believe in the public mind with regard to the pulp and paper mills as earning units. The fact of the matter is that while the pulp and paper industry has never earned spectacular profits, on the basis of the record over the past 15 or 20 years, it has been in a very favorable position compared with other industries of comparable size when earnings during periods of depression were considered. In other words, stability within the pulp and paper industry has been relatively good in spite of a general theory of a feast or famine industry. You may feel that conditions within your own household need a lot of organizing to make them perfect but such things are to a degree relative and it is probably true if you view the situation in your neighbor's household, you might be indeed satisfied with your own. This is true with regard to the pulp and paper industry as an industry.

Dept. of Commerce Reports

"In passing, in considering the industry's general situation, I cannot refrain from commenting upon some national publicity that was the result of a report issued by the Department of Commerce covering the month of August, as related to the pulp and paper industry. This report brought

(Continued on page 20)

If it's CAST IRON you can weld it with NI-ROD



WHAT NI-ROD GIVES YOU

—in performance

- Stable arc in all positions
- Smooth bead contour
- Excellent "wash"
- Easy slag removal
- Preheating seldom required
- Works on either a.c. or d.c.

—in Weld Quality

- High-strength deposit
- Easy machinability
- Thorough fusion
- Freedom from cracks and porosity
- Close color match

NI-ROD WELDING ELECTRODES SUCCESSFULLY BUILT UP THIS WORN DIE

Dished heads are just one of the products of Lukens Steel Company, Coatesville, Pa.

They're formed with large hemispherical dies. Dies made of cast iron. Dies that are fairly expensive. When one wears down, Lukens' maintenance men try to restore the original contours.

For several years Lukens had used brazing to build up the worn areas. Then they tried Ni-Rod* welding electrodes because of good reports on its strength and easy machinability.

Here's what Lukens has to say about this repair job:

> **"With other wires, it was found that welds would pull loose from the casting when in use. Ni-Rod was the only electrode that could be used successfully. It would not pull loose when in operation, and had a very good wearing quality. We now use Ni-Rod for building up dies to insure good wear and where pressure on the die is involved."**

The welded die (before machining) is shown at the left. Note the smooth layer of Ni-Rod beads. Proof of Ni-Rod's easy handling!

*Reg. U. S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

TRY NI-ROD AT OUR EXPENSE!

Prove to yourself that Ni-Rod has taken cast iron welding out of the "hit-or-miss" class.

Send in the coupon and get 3 free electrodes. Try 'em on any cast iron job you have. See if they're not the easiest-handling electrodes you ever used to weld cast iron.

Time and time again, Ni-Rod can save you money in repairing damaged iron castings; in building up worn areas; in correcting machining errors; on the production line to join cast iron to steel.

SEND IN COUPON TODAY ➡

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

Gentlemen: I'd like to try Ni-Rod welding electrodes. Please send me 3 free rods of the diameter I have checked.

☐ 3/32" ☐ 1/8" ☐ 5/32" ☐ 3/16"
(Please check *one* size only)

Name.....

Company.....

Address.....

City..... State.....

P.T.J. 10-48

Ladies attending the Superintendents gathering enjoyed a sparkling entertainment program.

Northwestern Supt's.

(Continued from page 11)

Valley Iron Works Co., who identified three of the five portraits.

The program for the ladies featured a sightseeing tour of some of Merrill's scenic points — Council Grounds, Stange Park, Holy Cross Convent; a luncheon at Club 64 followed by an afternoon of cards, and the dinner-dance which brought the two-day meeting to a close.

Another highlight of the meeting was a bowling party for both men and women at the Gold Arrow Lanes. Prizes for golf and bowling were distributed at the grand finale dinner-dance.

Both the Ward Paper Co. at Merrill, and the Rhinelander Paper Co. at Rhinelander extended invitations to all present at the meeting to visit their mills.

Fred C. Damp of the Ward Paper Co., was convention chairman and Laurin Sabatke of the Marathon Corp., was general chairman of the professional meeting. S. E. Ekman of the Rhinelander Paper Co., retiring chairman, presided at the business meeting.

Mechanical Pulping Meet

(Continued from page 13)

Wilbur, Askania Regulator Co.; Press, Henry C., Oxford Paper Co.

Quick, R. C., Eastern Chemical Inc.

Reichert, J. S., E. I. du Pont de Nemours & Co.; Reidman, Ernest J., Keyes Fibre Co.; Reynolds, F. J., Bristol Co.; Richardson, C. A., Blandin Paper Co.; Rittenhouse, G. V., Virginia Smelting Co.; Roberts, C. B., F. W. Roberts Mfg. Co., Inc.; Robinson, C. T., Consolidated Paper Corp., Ltd.; Rodabaugh, Eugene E., New York & Pennsylvania Co.; Rust, T. G., Ontario Paper Co.

Schaefer, C. E., Appleton Machine Co.; Schafer, E. R., U. S. Forest Products Laboratory; Sears, Lewis, Fraser Co., Ltd.; Shipman, George E., Donnacona Paper Co.; Simons, L. G., Chas. T. Main, Inc.; Slater, S. W., Hearst Enterprises; Slocum, Chas. P., Corn Products Sales Co.; Smith, Leon E., Downingtown Mfg. Co.; Snyder, J. H. St. Regis Paper Co.; Snyder, Kenneth, Gould Paper Co.; Sprague, Fred N., St. Regis Paper Co.; Stinchfield, Roger M., University of Maine; Stratton, Harry; Stroud, W. D., F. C. Huyck & Sons.

Taylor, L. B., Columbia Chemical Div., Pittsburgh Plate Glass Co.; Thomas, Joseph J., S. D. Warren Co.; Thompson, George, B. F. Perkins & Sons; Thompson, Ralph E., Ansul Chemical Co.; Tilley, William, St. Regis Paper Co.; Towne, Leland C., Hollingsworth & Whitney Co.; Torrey, Wilfred V., S. D. Warren Co.

Van Brunt, I. K., Wallace & Tiernan Co.; Vaughan, M. H., Solvay Process Div.

Walker, W. J., St. Regis Paper Co.; Wall, T. P., Peacock Bros., Ltd.; Wardwell, Charles, Carthage Machine Co.; Warwell, N. P., Carthage Machine Co.; Waters, C. M., Dicalite Co.; Wentworth, W. E., Clinton Industries Inc.; Werner, T. H., S. D. Warren Co.; Wetmore, R. T., Anglo-Newfoundland Development Co.; White, F. O., Fraser Co. Ltd.; White, John N., Keyes Fibre Co.; Witty, George F., Canada Paper Co.; Wood, Harold, Heppenstall Co.; Woodman, F. W., Ontario-Minnesota P. & P. Co., Ltd.; Wright, Jack F., National Aniline Div.

Yarber, C. J., Chemical Paper Mfg. Co.

E. W. Tinker

(Continued from page 18)

forth some headlines to the effect that the pulp and paper industry was curtailing production in order to maintain its price structure. These headlines created a very considerable turmoil within the industry itself and outside in financial circles. The fact of the matter is that up to the time this report was issued, week by week production in the pulp and paper industry exceeded the 1947 rate. It is such statements as these that lead to misconceptions, that are certainly not conducive to the industry's welfare. I have had careful check made as to the statistical justification for any such statement as was featured and can find absolutely none. . . .

Summary

"In my judgment, after a good deal of study of the pulp and paper industry as compared with industries of comparable size, I am convinced that the industry stands in a favorable position. . . . Business slumps may come and go, but there are some basic fundamental factors in our private enterprise civilization that will resist curtailment because they are too much a basic part of our everyday life. It is these factors that have in the past and will in the future stabilize the pulp and paper industry and protect the people dependent upon it as well as those who are investors in it.

"Gentlemen, I think you and I have a little job to do to correct an erroneous conception that is now prevalent not only in financial and industrial circles, but in the public mind in general."

N. F. Newsprint to U. K.

LONDON, Eng.—The Newsprint Supply Co., reports that it hopes the total newsprint imports from Canada and Newfoundland in 1949 will reach 100,000 long tons, the figure reached in 1947 and 1948.

The company already has been told by the British Board of Trade that permitted imports from Canada and Newfoundland in 1949 will be a minimum of 80,000 tons. The company may import up to 60,000 tons during the first half of the year.

"This leaves a minimum of 20,000 tons to be imported in the second half, but the Canadian and Newfoundland mills have been asked by the Newsprint Supply Co., to reserve a further 20,000 which they hope to have the authority to import if the dollar situation permits," the report added.

Government sources said there has been hope that with the assistance of the European Recovery Program newsprint imports will be slightly higher in 1949.

N. Z. Wood Pulp Mill

WASHINGTON — New Zealand's first wood pulp mill, which is to be built near Auckland, by a private company, is expected to begin production in 1950, according to a despatch to the Department of Commerce from the American Embassy.

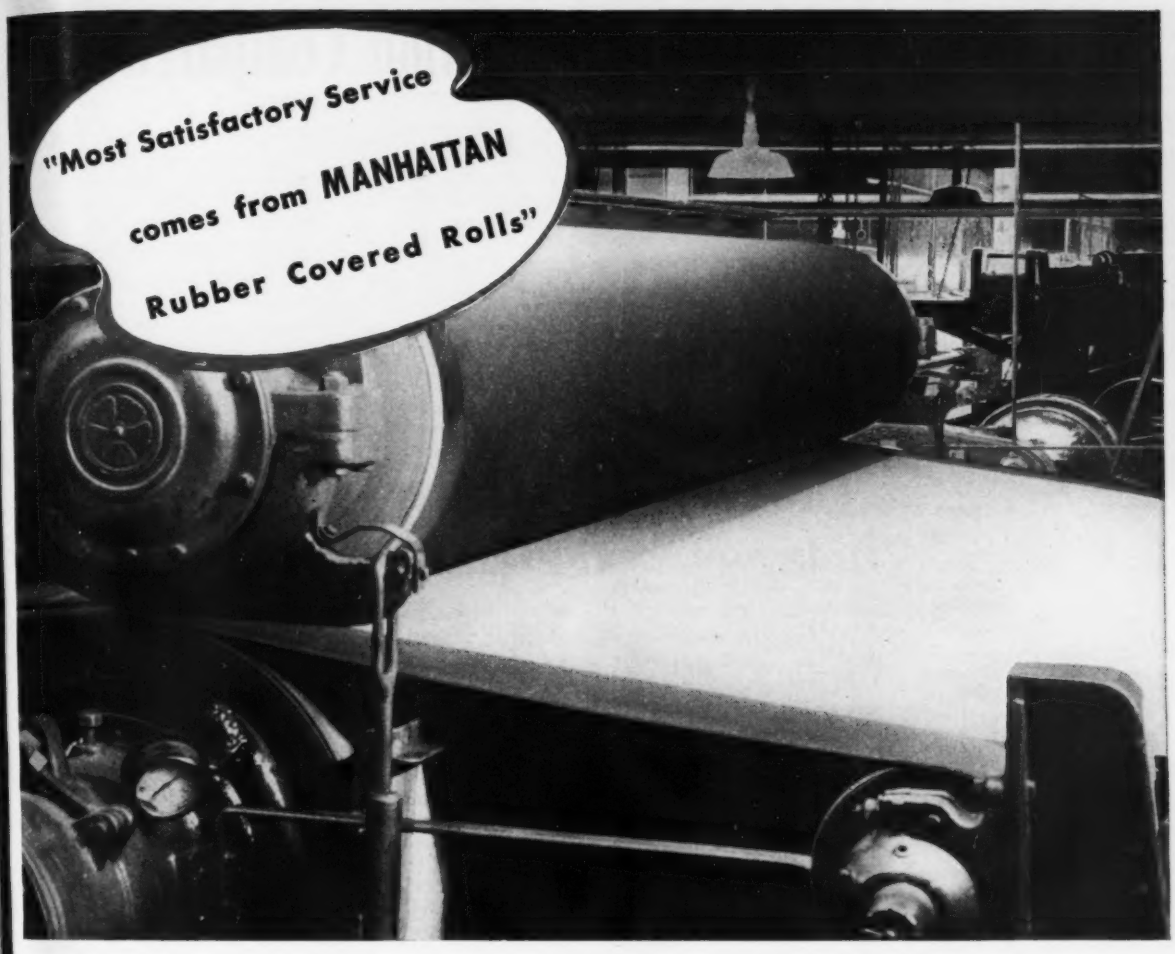
The initial output will be about 10,000 tons of pulp per year, it is stated, the pulp to be used by New Zealand and Australian manufacturers of kraft bags, and also by a plant to be built in New Zealand by the pulp company to manufacture multi-wall bags.

Plans also have been laid to establish a Government pulp mill at Murupara, near Auckland, by 1952, the report added.

Export Quota Upped

WASHINGTON—The Swedish export quota of chemical pulp to Italy for 1948 has been increased to 33,000 tons from 20,000, this Government has been advised.

Other increases in quotas for shipment to Italy under the present commercial agreement between the two countries, it was stated, include: mechanical pulp, to 7,500 tons from 3,500; waste paper, to 15,000 tons from 10,000; and paper and paper products to a value of 350,000 crowns, from 200,000, with the crown equal to slightly over 27 cents. U. S.



. . . says a Southern Kraft Mill

This is a photograph of Manhattan Rubber Covered Press Roll that has been in service since 1940 in a Southern paper mill, making kraft paper. Many other Manhattan Rubber Covered Rolls in this mill have given nearly 8 years of good performance. These 236" rolls operate at 1250' per minute, squeezing water out of heavy gauge stock, 212" wide.

The purchasing agent and mill superintendent say Manhattan Rubber Covered Press Rolls can squeeze at higher pressure for greater water extraction, while felt life is actually increased over operation with other types of rolls. They are reground about every 6 months.

Manhattan Rubber Covered Rolls will not oxidize or harden – coverings adhere inseparably to the metal shell – are virtually free of corrugating or checking – resist abrasion and acidity. These are the reasons over 75% of all rubber covered rolls used in this typical mill are Manhattan.

They use other MANHATTAN RUBBER PRODUCTS, too

This plant, which produces 1,000 to 1,300 tons of kraft day-in and day-out, depends on other Manhattan Rubber Products to keep its production record high. Paper Machine Water Hose and Steam Hose, Suction Hose, V-Belts, Transmission Belts, and Conveyor Belts.

You follow the example of many successful mills when you call the Manhattan Man for counsel and service in Rubber Products.

PLANTS AT PASSAIC, N. J. . . . NEENAH, WIS. . . . NORTH CHARLESTON, S. C.

RAYBESTOS-MANHATTAN INC.

MECHANICAL RUBBER PRODUCTS — RUBBER COVERED EQUIPMENT — FRICTION MATERIAL — ASBESTOS TEXTILES
PACKINGS — POWDERED METAL PRODUCTS — ABRASIVE & DIAMOND WHEELS — BOWLING BALLS

MANHATTAN RUBBER DIVISION **PASSAIC, NEW JERSEY**

1947-1948 Paper Production Compared

NEW YORK—Despite some current reports to the contrary the paper and paperboard industry has maintained a consistently high rate of production throughout the year to and including August, the American Paper and Pulp Ass'n. states is a copyrighted article in its *Monthly Statistical Survey*. The accompanying tabulation shows the weekly production of paper and paperboard since January 1 compared with the corresponding weeks of 1947.

Paper production as here tabulated is the weekly production of the paper mills participating in the Association's *Production Ratio report*. Some 291 mills participate in this report. The sample is large and representative as the tonnage reported is about 90 per cent of total production.

In some of the weeks listed, holidays fall in one week in 1947 and the preceding or following week in 1948. But aside from these, and the dislocation of production in the July vacation period, the 1948 week is consistently ahead of the comparable 1947 week in both the paper and paperboard series.

It is obvious from the tabulation that there has been no slow-down of production in the period under consideration it is pointed out.

PAPER			
Week Ending—1948		Week Ending—1947	
Jan. 3	179,520	Jan. 4	152,619
10	177,909	11	162,604
17	178,804	18	164,505
24	180,952	25	164,347
31	185,426	Feb. 1	164,822
Feb. 7	177,551	Feb. 8	168,309
14	179,878	15	165,615
21	177,909	22	167,833
28	182,742	Mar. 1	171,954
Mar. 6	178,804	Mar. 8	165,615
13	180,594	15	169,894
20	181,131	22	167,675
27	175,761	29	170,845
Apr. 3	174,494	Apr. 5	167,407
10	177,463	12	159,473
17	175,987	19	167,407
24	178,872	26	166,773
May 1	179,772	May 3	169,788
8	178,009	10	170,740
15	175,366	17	167,407
22	176,607	24	167,249
29	179,327	31	164,551
June 5	166,097	June 7	168,994
12	169,851	14	168,739
19	169,851	21	167,961
26	178,433	28	166,375
July 3	163,236	July 5	96,272
10	111,387	12	142,743
17	155,727	19	162,409
24	176,824	26	167,485
31	172,533	Aug. 2	163,361
Aug. 7	173,427	Aug. 9	166,057
14	172,355	16	165,582
21	174,679	23	163,678
28	172,533	30	165,106

PAPERBOARD			
Week Ending—1948		Week Ending—1947	
Jan. 3	136,219	Jan. 4	142,338
10	177,964	11	178,043
17	193,150	18	178,556
24	188,002	25	173,720
31	185,994	Feb. 1	179,347
Feb. 7	177,884	Feb. 8	181,017
14	183,376	15	178,458
21	171,191	22	177,282
28	180,943	Mar. 1	181,709
Mar. 6	193,205	Mar. 8	179,025
13	188,587	15	179,819
20	192,531	22	176,918
27	193,650	29	180,729
Apr. 3	186,484	Apr. 5	181,064
10	193,572	12	165,902
17	186,438	19	177,478
24	190,294	26	180,227
May 1	192,731	May 3	181,063
8	191,787	10	179,059
15	188,745	17	179,155
22	189,359	24	179,001
29	191,650	31	177,998
June 5	168,802	June 7	171,855
12	193,156	14	183,105
19	182,205	21	182,909
26	187,408	28	176,814
July 3	171,583	July 5	137,207
10	108,114	12	133,950
17	157,641	19	173,699
24	175,182	26	176,856
31	178,392	Aug. 2	173,527
Aug. 7	178,326	Aug. 9	174,180
14	184,342	16	182,090
21	185,537	23	177,712
28	183,835	30	176,588

ASME Wood Industries Conference

HIGH POINT, N. C.—The American Society of Mechanical Engineers 1948 Wood Industries Division Conference will be held in cooperation with the Piedmont-North Carolina Section at Hotel Sheraton, October 14-15.

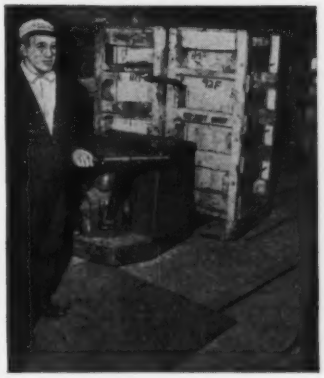
Session I on October 14 will include a symposium Woodworking Research; Advantages and Limitations of each Type, with Thomas D. Perry as chairman and Kenneth Redman as recorder. Papers to be presented include: "Forest Products Laboratory," by George M. Hunt, director, U. S. Forest Products Laboratory, Madison, Wis.; "University or School Laboratory" by Nelson C. Brown, professor, New York State College of Forestry, Syracuse University, Syracuse, N. Y.; "Private Commercial Laboratory," by Armin Elmendorf, president, Elmendorf Corp., Chicago; "Timber Engineering Co., Laboratory" by Carl A. Rishell, director of research, Timber Engineering Co., Washington, D. C.; and "Small Woodworking Industry Laboratory," By C. S. Dosker, president, Gamble Bros., Inc., Louisville, Ky.

Session II, in the afternoon of the same day, with Elliott D. May as chairman and E. S. Johnson as recorder, will include the following—"An Educational Program for the Woodworking Industry" by L. A. Patronsky, professor, School of Forestry, University of Michigan, Ann Arbor; and "Fabrication of Structural Members" by F. Powell Forbes, manager, engineering and fabrication division, Weyerhaeuser Timber Co., Newark, N. J.

Session III, on October 15, with A. W. Dunbar as chairman and E. B. Hall as recorder, will be given to the reading of papers as follows: "Two-Species Laminated Beams" by A. G. H. Dietz, Department of Building Engineering and Construction, Massachusetts Institute of Technology; "Circular Saws; Design, Manufacture and Operation," by R. D. Brooks, field engineer of E. C. Atkins & Co., Indianapolis; and "Influence of Depth Penetration on Withdrawal Resistance of Nails," by E. George Stern, director, Wood Research Laboratory, Virginia Polytechnic Institute, Blacksburg, Va.

YALE FORK TRUCK

YALE WORKSAVER



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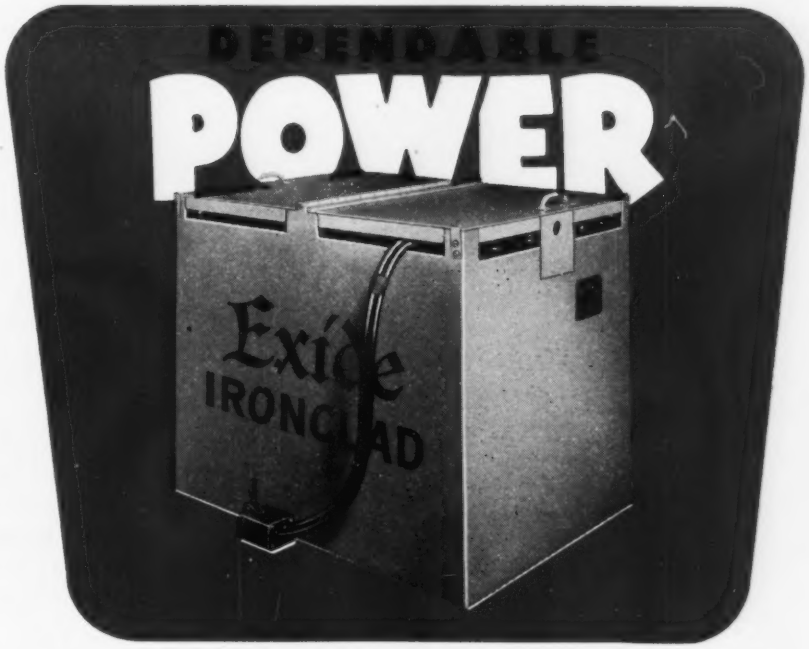

1888 . . . Dependable Batteries for 60 Years . . . 1948

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

Michigan Superintendents October Meeting

KALAMAZOO, Mich.—Michigan Division of the American Pulp & Paper Mill Superintendents Ass'n., Inc., will meet at Hotel Harris on October 21. Tickets for the 6:30 p.m. dinner may be purchased at the desk.

"The De-Inking and Bleaching of Waste Papers" will be the title of the paper to be delivered by J. H. Heuer, assistant technical director of the St. Regis Paper Co., Deferiet, N. Y. Mr. Heuer's talk will cover the complete paper and board recovery processes which reclaim such waste as news, book, groundwood papers, board, resin treated, plastic treated, etc.

Mr. Heuer will moderate this meeting, and the panel selected is: Robert H. Pete of Du Pont's Peroxygen Products Development, Niagara Falls, N.Y.; Fred R. Sheldon of Electro Chemical Co., Buffalo, N.Y.; and the following mill superintendents: Arthur W. Cole of Rex Paper Co., Kalamazoo; Raymond L. Barton of Michigan Paper Co., Plainwell, Mich.; Louis J. Scheid of Watervliet Paper Co., Watervliet, Mich.; James A. Wise of Kalamazoo Paper Co., Kalamazoo; Melvin J. Killian of the St. Regis Paper Co., Kalamazoo; and O. F. Flatland of the Eddy Paper Corp., White Pigeon, Mich., Olin W. Callighan, secretary-treasurer of the Michigan Division, reports.

New Safety Paper Use

WASHINGTON—The new safety paper being used for certain new export license forms which must be forgery-proof has been adopted for broader use by the Office of International Trade and eventually will be used for all export licenses, it was stated on September 22.

The specialized paper is being confined at present to Form IT-628, covering export of items on the Positive List. Outstanding Form IT-419 licenses for Positive List commodities will continue to be accepted by Customs Collectors pending further notice, it was stated. Pressure of work on the agency requires it to restrict use of the paper to this one form at present, but the plan is to use it for all export license forms in the future.

Provincial Plant Closing

GEORGETOWN, Ont. — The Provincial Paper Mill will be closed this fall for economical reasons, company officials report. A paper coating mill operated by the same company here will remain in full operation.

Closing of the mill, described as the firm's oldest and smallest, will be carried out in stages in conjunction with realignment of production in the other Provincial mills.

"Although its production is rated at 15 tons a day, the condition of its equipment has deteriorated to the stage where it has lately been producing somewhat less than that," a company official said. "Now that modernization of Provincial's three other paper mills at Port Arthur, Thorold, and Mille Roches, has increased their output more than the Georgetown's paper mill's capacity, its closing has become practical without effecting the company's overall output.

The mill was built in 1853 on a sawmill site on the Credit River. It was acquired by the Provincial Paper Co. in 1912 from the Barber Paper & Coating Mills, Ltd.

AN INVITATION
to
Technical Writers

Paper Trade Journal in the Industrial Development Section, makes space available for discussion of administrative and operating problems. Space is also available for presentation of independent studies and research on technical and engineering subjects. Feature stories of paper mills, converting plants and interrelated industries will also be included.

An invitation is cordially extended to all who are qualified to discuss these subjects.

Original manuscripts submitted exclusively to Paper Trade Journal and found suitable for use in this section will be paid for immediately upon acceptance. Submit manuscripts to E. P. McGinn, Industrial Editor.

Drouth Halts Mill

GROVETON, N. H. — The Groveton Paper Co., employing 800 persons, closed temporarily in mid-September because of lack of water for processing.

A company spokesman said the Ammonoosuc River has dried up to a "small brook."

The company normally operates in three shifts, six day a week. It is the town's major industry.

Forestry-Conservation Conclave

VICTORIA, B. C.—The Western Forestry & Conservation Assn. will hold its annual convention at the Empress Hotel, December 9-11. H. J. Filberg, managing director of the Comox Logging Co., Ltd., is president of the Association.

Rogers Vets Honored

MANCHESTER, Conn. — The eleventh annual outing of the Rogers Corp, with plants at Manchester and Goodyear, Conn., at Riverside Park, Agawam, Mass., in mid-September was highlighted by the presentation of gold watches to five employes who have completed 25 years of service with the company.

The outing was planned jointly by management representatives and by members of the local unions.

The five employes who received watches were: Robert F. Hawley, treasurer of the corporation; Daniel Wright, a dampener operator at the Goodyear plant; Frank Andrews, a beater engineer at the Manchester plant and president of the Manchester plant local; John Gibson, maintenance mechanic at the Goodyear plant; and John Wolfe, finishing room foreman at the Goodyear plant.

Brownville Improvements

BROWNVILLE, N. Y.—The Brownville Board Co. is in process of adding a Combustion Engineering Co. boiler and General Electric turbine to increase the capacity of its power plant. A new stack is also being constructed by the Alphous Custodious Co.

The 112-inch, six-cylinder board machine will also be improved by the addition of a hood supplied by the J. O. Ross Engineering Co., and several centrifugal pumps supplied by the Ingersoll-Rand Co. Total cost of the improvements will exceed $100,000.

Reject UPW of A (CIO)

BIRMINGHAM, Ala. — Employes of the Birmingham Paper Co. rejected the United Paper Workers of America, CIO, as their bargaining agent in an election held in the plant on September 17, L. F. Green, personnel director, told *Paper Trade Journal*. "The employes voted against this union 150-137. There were two contested votes and one void," Mr. Green stated.

Word's Silver Anniversary

PISGAH FOREST, N. C.—Thomas N. Word, vice-president and secretary-treasurer of the Ecusta Paper Corp., marked his 25th anniversary as an employe of that firm on September 10. Letters, telegrams and personal expressions of felicitation from business associates came to him from all quarters.

Raising Canal Bank

LEBANON, Ore. — Construction of a higher bank along the east side of the Lebanon canal between the logging bridge at the Crown Zellerbach mill and Isabella street was started recently by the mill and the Mountain States Power Co. The project involved moving about 8,000 cubic yards of earth.

Heron's Book Chosen

SAN FRANCISCO — Alexander Heron, vice-president of the Crown Zellerbach Corp., authored "Why Men Work," the book which was the August selection of the Executive Book Club of New York. Mr. Heron's book, published by the Stanford University Press, deals with labor-management relations.

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Elof Hansson, Inc., as importers and exporters of paper and woodpulp, has kept pace with the times. Through our round-the-globe organization, with offices in nine key cities, we are prepared to expedite the purchase and sale of all types of paper and woodpulp. Our quick, efficient methods of bringing buyer and seller together insures substantial profits for both.

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Coming Up

ASSOCIATION EXECUTIVES: Please send us your meeting dates and locations for this column as far in advance as possible. No charge for publication.

OCTOBER 7-8: American Society for Testing Materials, Committee D-10 on Shipping Containers, Chicago.

OCTOBER 12-16: Fifth National Chemical Exposition. Coliseum, Chicago, Ill. For details, write to Marcus W. Hinson, manager, care of Chicago Section, American Chemical Society, 1505 South Wabash Avenue, Chicago 5.

OCTOBER 13: American Society for Testing Materials, Philadelphia District. Franklin Institute.

OCTOBER 14: American Society for Testing Materials, Washington, D. C., District. Wardman Park Hotel.

OCTOBER 14-15: American Society of Mechanical Engineers, Wood Industries Division Conference, Hotel Sheraton. High Point, N. C. O. B. Schier, II, meetings and divisions manager.

OCTOBER 19: American Society for Testing Materials, Chicago District. Joint meeting with Western Society of Engineers.

OCTOBER 21-23: Joint Meeting, Southern and Southeastern Superintendents Divisions. Biltmore Hotel, Atlanta, Ga.

OCTOBER 25-28: Third Engineering Conference of the Pulp and Paper Industry sponsored by TAPPI. Statler Hotel and Westinghouse Electric Co., Auditorium, Buffalo, N. Y.

OCTOBER 26: American Society for Testing Materials, New York District. Engineering Societies Building.

OCTOBER 26-27: Office Management Conference, American Management Ass'n. Hotel Pennsylvania, New York.

OCTOBER 28-30: National Paper Trade Ass'n. Fall Convention. Stevens Hotel, Chicago, Ill. For details write to Arthur H. Chamberlain, 220 East Forty-Second Street, New York 17, N. Y.

NOVEMBER 4: American Society for Testing Materials, St. Louis District. Joint meeting with St. Louis Chapter, American Society for Metals. Engineers Club.

NOVEMBER 4-5: Third Midwest Conference, American Society for Quality Control, Hotel Sherman, Chicago. For details, write to E. H. Robinson, Chairman, Publicity Committee, P. O. Box 1097, Chicago, Ill.

NOVEMBER 10: American Society for Testing Materials, Philadelphia District. Franklin Institute.

NOVEMBER 16: American Society for Testing Materials, Cleveland District. Cleveland Engineering Society.

NOVEMBER 18-19: Production Conference, American Management Ass'n. Hotel Drake, Chicago.

NOVEMBER 19: American Society for Testing Materials, New England District. Hotel Sheraton, Worcester, Mass.

NOVEMBER 29: American Society for Testing Materials, Pittsburgh District, Mellon Institute.

DECEMBER 2-3: Insurance Conference, American Management Ass'n. Hotel Drake, Chicago.

AMERICAN PAPER AND PULP ASSOCIATION'S PRODUCTION RATIO REPORT*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1948		Corresponding Weeks—1947	
August 21	97.7	August 23	103.7
August 28	95.2	August 30	104.1
September 4	94.0	September 6	84.7
September 11	77.4	September 13	106.9
September 18 (Revised)	97.3	September 20	108.6
September 25	**99.8	September 27	107.0

COMPARATIVE MONTHLY SUMMARIES

1947						1948	
Jan.	102.1	May	106.2	Oct.	109.5	Jan.	100.3
Feb.	105.9	June	106.2	Nov.	109.3	Feb.	99.8
Mar.	106.1	July	93.5	Dec.	101.5	Mar.	100.8
Apr.	105.1	Aug.	104.2	Year Avg.	104.3	Apr.	100.8
		Sept.	102.0			May	100.5
						June	‡94.5
						July	‡88.1
						Aug.	‡96.8

‡ Preliminary Ratios.

COMPARATIVE YEARLY SUMMARIES

	1941	1942	1943	1944	1945	1946	1947	1948
Year to Date	95.2	92.1	88.2	87.9	88.2	100.2	103.4	96.9
Year Average	97.4	90.4	87.8	88.1	89.4	101.1	104.3	

** Indicates 1948 volume of 179,442 tons—Comparable week 1947—169,577 tons.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1948		Corresponding Weeks—1947	
August 21	93	August 23	100
August 28	93	August 30	99
September 4	91	September 6	79
September 11	76	September 13	103
September 18	97	September 20	101
September 25	94	September 27	102

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1947	99	103	101	100	101	101	90	99	96	101	99	89	98
1948	99	100	102	102	100	94	81	92					

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Obituary

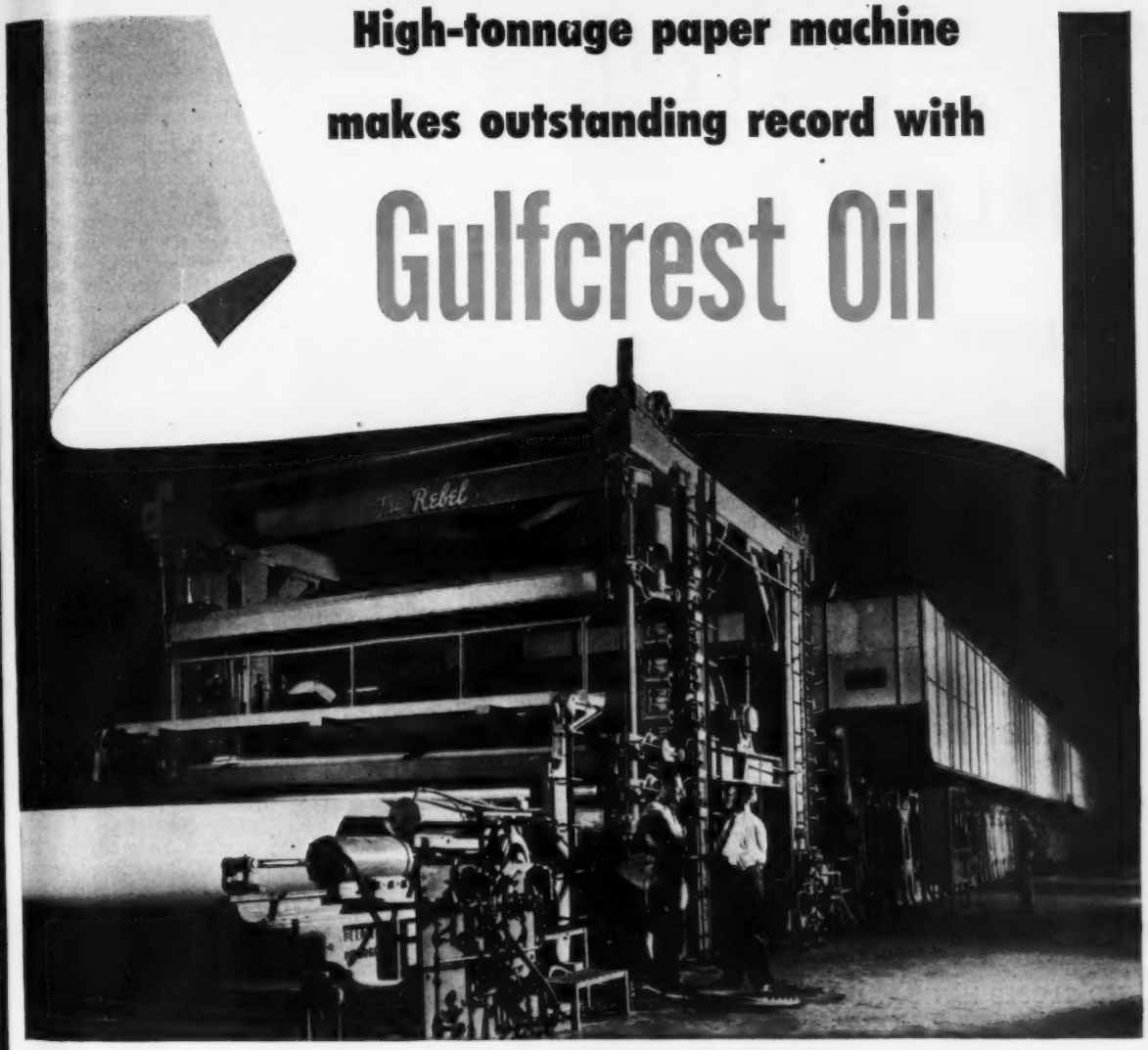
Norman Douglas Wilson, son of Norman W. Wilson, president of the Hammermill Paper Co., Erie, Pa., was struck and killed by a fast train at a railroad crossing about ten miles west of Erie the evening of September 30. Mr. Wilson was employed in the purchasing department of the company. Following attendance at Princeton University he served in the Navy during the last war. He is survived by his widow, two children and his parents.

Joseph B. Weis, 86, founder and chairman of the board of the Perfect Safety Paper Co., Holyoke, Mass., died on September 29 following a long period of failing health. Mr. Weis began the manufacture of safety paper in Franklin, Ohio, in 1894. Granted patents on his inventions, he organized the Perfect Safety Paper Co., which was moved to Holyoke in 1908.

William J. Caldwell, 44, sales manager of the fine paper division, and a director of the Chatfield Paper Corp., Cincinnati, died in Holmes Hospital on September 21, following a three-week illness. Surviving are his widow, Mrs. Edna Caldwell; his mother, Mrs. Annie J. Caldwell; a sister, Mrs. Mary Murphy, and two brothers, George G. and John T. Caldwell.

William R. Bulger, 48, president of the Great Lakes Paper Stock Co., Buffalo, N. Y., died on September 28, in Buffalo General Hospital. In ill-health eight years, Mr. Bulger entered the hospital last May.

High-tonnage paper machine makes outstanding record with Gulfcrest Oil



This modern 216" paper machine is producing 300 tons of Kraft paper per day at speeds as high as 1400 ft. per min. The lubrication Foreman (left) consults with a Gulf Lubrication Engineer on the performance of Gulfcrest Oil. The original fill of this quality oil is still in the machine after more than 6 years of service and still giving splendid protection.

"With Gulfcrest Oil, our paper machine has operated for more than six years without requiring repairs to lubricated parts," says the lubrication Foreman of this modern paper mill.

Here's why Gulfcrest Oil gives such excellent service in the lubricating systems of paper machines! Gulfcrest is refined by the Alchlor Process, an extra refining step that insures superior resistance to oxidation and sludging. Gulfcrest has good demulsibility, which means it separates readily from water; and it's nonfoaming.

Then, too, Gulfcrest Oil contains an effective, permanent corrosion inhibitor—protects the circulating system against rust. This quality lubricant will help you get greater production and lower maintenance costs!

For further information on Gulfcrest Oil and the complete line of Gulf quality oils and greases, call in a Gulf Lubrication Engineer today. Write, wire, or phone your nearest Gulf office.

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Trends

Office of the PAPER TRADE JOURNAL, Wednesday, October 6, 1948.

From out the varied analyses of the pronounced easing in demand for most grades of paper and paperboard, its causes and effects, one fact emerges: a new level has jelled to which industry adjustment will have to be made.

Selected statements of the Department of Commerce's monthly *Economic Review* — reported fully elsewhere in this issue—contributes a portion of the picture. "The apparent leveling off may be explained in large measure by the leveling of national purchasing power in terms of physical volume. But most noteworthy has been the relative greater activity of the durable goods industries in comparison to 1947, than the nondurables. In other words, for every dollar of goods produced and sold, the percentage for durables has increased and the percentage for nondurables has decreased. Because paper and board demand is influenced mostly by their use in packaging and distribution of nondurables, this trend seems to explain to some degree the leveling in paper demand."

"The situation is further explained," says Mr. W. L. Neubrech of the Department, "by reference to personal consumption expenditures which increased from $172 billion in the first quarter to $175 billion in the second, a lower rate of expansion than occurred in 1947. Moreover, consumers are spending a larger percentage of each dollar for durables such as homes and automobiles. Furthermore, higher prices on various goods and services have meant that by spending more dollars they have not been able to purchase in the aggregate significantly more goods or services. . . . The general commodity price level has continued to edge higher. . . . The equivalent decline in purchasing power of the dollar has been reflected back to manufacturers of many types of goods who, having increased production since the end of the war, now find they are producing goods in volumes equal to consumers ability to purchase. Thus there has been an equivalent leveling off in the output of such goods compared to the rapid rise in the production of such products since the end of the war. Practically all suppliers admit backlogs have diminished or completely vanished."

One New York economist, arguing with the belief of some that postwar inflation is ended and the collapse of the "bloated postwar demand" will follow soon, sees few signs of a major collapse in postwar demand, although demand seems to have folded here and there.

Basic Demand Index has about equaled the Production Index for the first time since 1947, according to the August report of AP&PA. In the intervening period, the index of production has exceeded the index of Basic Demand." Concurrently the backlog of unshipped orders has steadily been reduced from 115% to the more normal figure of about 75% of monthly capacity. Although low by comparison with recent months, the July Basic Demand Index at 170.6 is higher by seven points than even the wartime peak of 163.7 in February of 1945. This also may be compared with the peak of 112.6 points at the top of the boom in April 1937. It is obvious that demand is running at an extremely high level by any wartime or prewar standards, and that postwar production has been rapidly increased to handle comfortably this greatly increased demand."

Opinions held by the trade vary so greatly that few are willing to venture expression. When the anticipated pickup did not follow the summer slump, analyses gave way to adjectives. Demand is off; mills, distributors and consumers are watching inventories carefully; no sign of improvement anywhere is evident. Writing papers, book and paperboard seem hardest hit, writing paper mills taking the greatest setback by reason of the prolonged softening in rag contents and growing sulphite inventories. In this segment of the industry, conditions are viewed as grave with more small mills likely to close, others bound to cut back production.

Industry leaders generally see the "leveling demand" as a readjustment to normal prewar marketing on a buyers' market where quality and good merchandising must again be determining factors. No recession is seen but a diminished demand to a new level.

Wood Pulp

Impact of the lessened demand is felt by all those allied to the paper and paperboard industry. Particularly hard hit are Scandinavian wood pulp producers with sizable fourth-quarter reservations, and the waste paper industry.

Domestic production of market woodpulp continues to show steady gains with mill inventories advancing proportionately, even gaining as monthly consumption dropped. Reliable sources believe requirements for fourth-quarter market pulp can be met by domestic and Canadian supply plus some 15 to 20,000 tons of Scandinavian product. From which it has been concluded that recent cuts of $15.00 to $20.00 per ton in Swedish, Finnish and Norwegian pulp prices will have little effect in stimulating purchases during this quarter.

This is bad news for Finland and other Scandinavian countries which view the price cuts as a temporary situation created by concerted action and forced upon them in order to meet competition. Granted those economic conditions which are a sore problem to these countries, it is said here than U.S. consumers can purchase Scandin-

(Continued on page 38)

TENAX FELTS ARE TOUGH

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Trends

CONTINUED FROM PAGE 36

avian pulp only a competitive basis with domestic prices, except where added tonnage is required. Facing the leveled demand realistically, it is expected that new purchasing must now be undertaken for 1949's first quarter but that little will be drawn on fourth quarter reservations.

Market range of fourth-quarter contract prices for domestic and imported grades is shown on the *'Prices'* page. Lower quotations have been reported for spot sales of Swedish Bleached Sulphite at $155.00 and Unbleached Sulphite at $120.00 to $130.00, the latter prices bringing levels to competitive domestic ranges.

Waste Paper

This field, too, is taking a tremendous cutback in tonnage consumption, and the industry finds itself in a "deplorable condition" with pessimism oozing from trade paper editorials. Mill inventories appear to be sufficient to reduce purchasing to a minimum. Where more wood pulp has become available, consumption of waste paper has lessened. During the week ended September 25, there was slight buying for inventory, the ECC reported, at the same time suggesting that buying of *news* grades for inventory as well as for current consumption requirements can be expected within the next few weeks.

News alone has stiffened in price. Available supplies are reported to be 97 percent of mill requirements in local markets. Chicago's price advanced $2.00.

Mixed grades offer the greatest problem to dealers. Director Colley S. Baker of ECC reports that consumption has dropped to about 32 percent of all grades of waste paper consumed by board mills from 39 percent. And with supplies backing up in warehouses and packing plants, the condition is described as "shaping up to the place where collectors will have to be paid to move the mixed waste paper out of office and other buildings." Packers are reported as somewhat desperate about the situation.

Cottons

Trading in both new cuttings and old rags is reported as dull. Here, too, the dull condition of the fine paper field, particularly *rag contents*, registers sharply. Prices have dropped somewhat and are expected to soften further with the cotton market, it is stated. Demand for rag content papers does not warrant large purchases of cottons at present levels, and the limited supply is equal to demand. Little business is being booked by dealers.

Roofing stocks and other grades of old cottons are reported soft with a softening undertone. Little stock is being moved.

SOUTHLAND SAVES WITH DIESEL-ELECTRIC

Southland Paper Mills, Herty, Texas, estimates that fuel savings on its 45-ton General Electric diesel-electric switching locomotive which replaced a 40-year-old sawmill logging steamer in December, 1947, will approach $10,000 in its first year of operation. . . At this rate the unit will pay for itself in about 30 months, it is stated. . . When purchasing the unit, Southland Paper figured savings would be about $15 per day. After six months savings have been more than double what was estimated. In addition to the cut in expenses, according to W. L. McHale, general manager, it is a relief to be rid of the fire hazard from the old steam locomotive. . . The unit hauls the required 15-car load easily and, on occasion, has pulled as many as thirty 84-ton cars. There are two and one-half miles of track inside the plant, with ruling conditions of .5 per cent grades and six degree curves.

Philadelphians Golf

PHILADELPHIA — Torresdale-Frankford Country Club was the scene of the final golf tournament on October 5 of the Philadelphia Paper & Cordage Ass'n. Featured competitions for the day were for trophies as follows: W. C. Hamilton & Sons trophy, Jessup & Moore Paper Co. trophy, Buffalo Envelope Co. trophy. These are perpetual trophies retained by each winner for one year. Al Struble of the D. L. Ward Co. was chairman.

FOB Danger Seen

WASHINGTON, D.C.—Unless Federal Trade Commission orders which are being widely interpreted as banning uniform delivered pricing are clarified by Congressional action, there will soon be widespread industrial relocation which will cause overcrowding in some industrial centers and will further aggrevate the housing shortage, Alfred Schindler, former Under Secretary of Commerce, stated to the Senate Trade Policies Subcommittee.

Supplementary Agreement

WASHINGTON — Finland and Denmark have a supplementary trade agreement under which Finnish exports for 1948 will include 2,000 metric tons of newsprint, 1,000 tons of other printing paper, and paperboard valued at 2,000,000 Danish Kroner, with the Kroner equivalent to just under five to the dollar.

P. A. Paper Forum

LOS ANGELES—"Packaging and Paper Products" was the subject of a forum discussion led by John A. Tongue of Arden Farms, Inc., and George W. Aljian of the California & Hawaiian Sugar Corp., at the third annual Pacific-Intermountain Purchasing Agents Conference at the Biltmore Hotel on September 25.

Opening 'Frisco Office

SAN FRANCISCO — International Paper Co.'s Bagpak Division will open a branch sales office here in October with W. A. Scholl as district sales manager.

Do you want

Higher Brightness at Low Cost

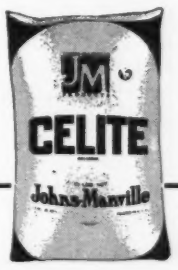
. . . as little as 4% CELITE* may increase brightness as much as 5 points

Paper makers throughout the industry report that Celite is proving a simple, yet effective solution to the problem of getting higher brightness.

They find that increases in sheet brightness of as much as five points (Tappi) are frequently obtained by the addition of as little as 4 per cent of Celite to the furnish.

Two Celite grades, developed specially to meet the demand for higher brightness at low cost, are producing these results. Of exceptionally high intrinsic brightness, they also have the characteristic Celite suspension properties which assure high retention in the sheet. They are used most effectively in conjunction with titanium dioxide.

Brochure FA-31A contains many helpful suggestions for obtaining higher brightness through the use of Celite. A copy is yours for the asking. Address Johns-Manville, Box 290, New York 16, N. Y.



*CELITE is Johns-Manville's brand name for its diatomite products. Reg. U. S. Pat. Off.

Imports

Week Ending Oct. 2

• NEW YORK •

Newsprint

News Syndicate Co., Mimi, Thorold, 2135 rolls.
R. A. Olsen, Kermic, Donnacona, 381 rolls.
News Syndicate Co., Ted, Thorold, 2140 rolls.
Pagel Horton & Co., Inc., Stavangerfjord, Oslo, 260 rolls.
H. G. Craig Co., A.C.D., Donnacona, 340 rolls.
R. A. Olsen, G.T.D., Donnacona, 373 rolls.
Malmar Paper Co., Exford, Trieste, 451 rolls.

Paperhangings

W. H. S. Lloyd & Co., American Banker, London, 36 bls.

Wallpaper

Hudson Shipping Co., Oregon, Havre, 21 pkgs.

Drawing Paper

H. Reeve Angel & Co., Inc., American Banker, London, 2 cs.
(———), Oregon, Havre, 3 cs.

Filter Paper

Stevens Nelson Paper Corp., American Banker, London, 1 cs.
H. Reeve Angel & Co., Inc., American Banker, London, 10 cs.

Photo Paper

American Express Co., American Banker, 82 cs. (base).

Parchment

Meadows Wye & Co., Queen Mary, Southampton, 1 cs.

Parchment Paper

F. C. Strype, Union Victory, Antwerp, 1 roll.

Fibreboard

Hi-Goal Products Corp., America, Havre, 26 crates.

Gummed Paper

B. F. Drakenfeld & Co., Media, Liverpool, 46 cs.

Serviettes

(———), American Banker, London, 37 cs.
(———), Media, Liverpool, 13 cs. (crepe paper).

Rice Paper

Flowercraft Supply Co. (Seattle), Marchen Maersk, Keelung, 25 cs.

Napkins

H. W. Robinson Co., Jutlandia, Copenhagen, 70 cs. (paper).

Miscellaneous Paper

Van Rockum, Inc., Stavangerfjord, Oslo, 1 pkge.

Rags, Baggings, etc.

E. J. Keller Co., Inc., Florida, Copenhagen, 58 bls. old bagging.
National City Bank, Media, Liverpool, 32 bls. new hosiery clips.
Loumar Textile By Products Inc., John B. Waterman, Antwerp, 99 bls. old waste bagging.
E. J. Keller Co., Inc., Meridian Victory, Venice, 153 bls. waste bagging.
(———), Meridian Victory, Venice, 73 bls. old colored cottons.
Chase National Bank, Khedive Ismail, Naples, 69 bls. rags.
E. J. Keller Co., Inc., Khedive Ismail, Alexandria, 71 bls. old cotton rags, 80 bls. old bagging.
(———), Khedive Ismail, Alexandria, 72 bls. scrap bagging, 60 bls. hessian bagging.
Bank of N. Y. Trust Co., Khedive Ismail, Alexandria, 81 bls. old cotton rags, 69 bls. old waste bagging.
National City Bank, Khedice Ismail, Alexandria, 40 bls. old burlap bagging, 58 bls. old Hessian bagging.
R. Blank, Khedive Ismail, Alexandria, 41 bls. white cotton rags.
Chase National Bank, American Manufacturer, Manchester, 15 bls. wool rags.
W. Barnet & Son, American Manufacturer, Manchester, 13 bls. wool rags.
(———), Exchange, Leghorn, 65 bls. scrap jute bagging, 36 bls. old khaki cottons.
C. Comiter, Marchen Maersk, Shanghai, 100 bls. cotton waste, 100 bls. picker waste.
Midwest Waste Material Co., Eemdyk, Antwerp, 55 bls. rags, 8 bls. scrap bagging.
Chase National Bank, Eemdyk, Antwerp, 77 bls. jute mill waste.
Midwest Waste Material Co., Pres. Buchana, Genoa, 158 bls. scrap bagging.
Cowa & Co., Mormacelm, Recife, 212 bls. cotton pickers.
New England Waste Co., Pres. Buchanan, Cabedello, 209 bls. cotton picker waste.
Ledeboer & Co., Oregon, Havre, 73 bls. cotton waste.
Padawer Bros., Dona Nati, Shanghai, 100 bls. cotton waste.
Cecil Kutz, Dona Nati, Shanghai, 200 bls. cotton waste.
National City Bank, Dona Nati, Shanghai, 62 bls. waste bagging.

Old Rope

(———), American Manufacturer, Glasgow, 95 coils, 26 bls.

Casein

Tupman Thurlow & Co., Dryden, Buenos Aires, 2000 bags (ground lactic).
American Cyanamid Co., Bostonian, Buenos Aires, 500 bags.

• BOSTON •

Argo Wool Corp., Union Victory, Antwerp, 37 bls. rags.
Amicale Woolstock Service Co., Bostonian, Buenos Aires, 18 bls. wool thread waste.
A. de Vries Trading Corp., American Shipper, Havre, 67 bls. rags.

• PHILADELPHIA •

Castle & Overton, Inc., Exford, Venice, 74 bls. old rags.
Tradesmans National Bank Trust Co., Taybank, Port Said, 46 bls. old cotton rags.
Castle & Overton, Inc., American Manufacturer, Glasgow, 120 bls. jute thread waste.
David Galloway, Dona Nati, Shanghai, 159 bls. cotton waste.

• NORFOLK •

F. P. Gaskell Co., American Manufacturer, Glasgow, 28 cs. coated paper (for cigarette tips).

Paper Duty Comments

NEW YORK—Nearly a year ago Mexico unilaterally revoked many of the concessions granted in a trade agreement with the United States, effective in 1943. The State Department has been negotiating with Mexico for a revision of the present Mexican program, which affects a considerable number of grades of paper. There is no indication, according to Warren B. Bullock, manager of the Import Committee of the American Paper Industry, that Mexico will restore the concessions it made in this agreement, and the United States, as far as is known, is making no suggestions that this country might retaliate by withdrawing its own concessions under the agreement. On the contrary, Mexico has devalued the peso from 4.85 to the dollar to approximately 6.70, adding still further burdens to American exporters, and advantages to Mexican shippers.

An imported paper from Canada, claimed to be dutiable as printing paper, is believed to be wrapping paper dutiable at a higher rate.

Canadian bristol board for use in business machines is claimed to be dutiable as paperboard, not at the higher rate for bristol.

Bible paper imported at San Francisco, claimed by importer to be dutiable as printing paper, has been classified for duty at the higher rate for bible paper weighing between 10 and 20c pounds per ream.

Box cover paper, claimed by importer to be dutiable as printed material, has been classified for duty at the much higher rate for fancy coated paper.

ECA Authorizations

WASHINGTON—Pulp, paper and paper industry machinery was included in ECA authorizations announced the past week. Among the procurement authorizations were: Norway, a paper mill machine, for purchase in this country, $770,000; Netherlands, various types of grease proof papers, coated papers, office supplies, blueprint paper, tissues, etc., for purchase in U. S., $444,000; United Kingdom, industrial woodpulp, from Canada, $1,790,000; wood and gum rosin, from U. S., $1,469,500; Kraft container board, from U. S., $600,000; for Bizone Germany, casein, from Argentina, $100,000; Austria, tall oil, from U. S., $10,350.

Canadian Newsprint

MONTREAL — Canadian newsprint shipments in August amounted to 389,148 tons, an increase of 11,207 tons over shipments in August, 1947, the Newsprint Ass'n. of Canada reports. Canadian production was 396,049 tons for the month, 7,943 tons higher than a year ago. Because shipments in August exceeded production by 6,901 tons there was a corresponding decrease in stocks held by Canadian manufacturers.

DeFarges to Quaker

PHILADELPHIA — Stephen B. DeFarges, former vice-president of the Jessup & Moore Paper Co., is now affiliated with the Quaker City Paper Co. of Philadelphia.

Howlett Elected President

NEW YORK—Henry J. Howlett succeeds the late E. A. Throckmorton, Jr., as president of Container Laboratories, Inc.

Modernizing and Expanding

GRAND RAPIDS, Mich. — Quimby-Kain Paper Co., is modernizing and expanding its offices.

There's Precision Engineering in every POWELL VALVE

Powell makes valves by the thousands. We have to in order to satisfy the nation-wide demand.

But don't be misled! We know that quality often suffers through so-called "mass production" methods. So every Powell Valve from a standard small bronze globe to the most special design for corrosion resistance is given the most meticulous, individual attention. That's why Powell Valves have such an outstanding reputation for long life and dependable performance in every branch of industry. It pays to install Powell Valves.

Fig. 1259—125-pound All Iron Swing Check Valve with flanged ends, bolted flanged cap and regrindable, renewable iron disc.

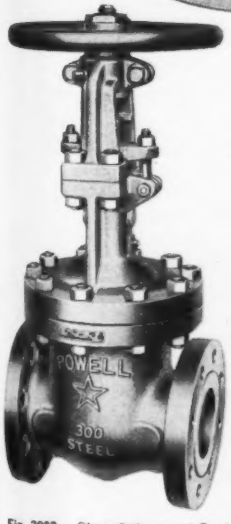


Fig. 3003— Class 300-pound Cast Steel Gate Valve with flanged ends, outside screw rising stem, bolted flanged yoke and tapered solid wedge.

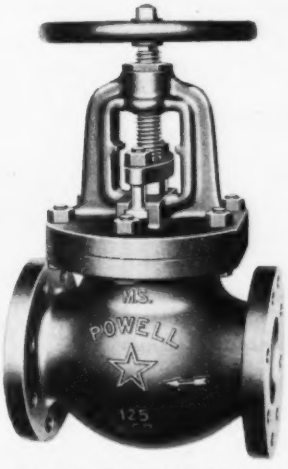


Fig. 457—125-pound All Iron Globe Valve with outside screw rising stem, bolted flanged yoke and regrindable renewable iron seat and disc.

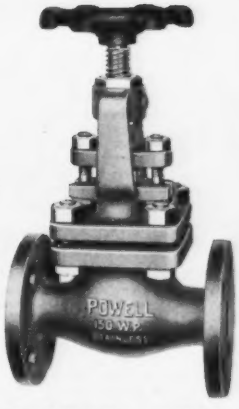


Fig. 1969—150-pound Stainless Steel Gate Valve with flanged ends, outside screw rising stem, bolted flanged yoke-bonnet and tapered solid wedge.

Fig. 1893—Flanged end Gate Valve designed and developed especially for Paper Mill service. Body, bonnet and yoke are cast of 3% Nickel Iron; screwed-in seat rings are 18-8 SMo; solid wedge is made of Ni-resist.

The Wm. Powell Co., Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

POWELL VALVES

Prices

Quotations indicate trends in an open market. At the moment they can be of little more value. While some volume business still is done under contract at the figures shown, fluctuations are too varied and frequent to permit prices to be interpreted as representing a wholly stabilized market.

NEW YORK

Paper

(Delivered New York)

Standard News, per ton—	
Rolls, contract	$96.00/100.00
Sheets	111.00/ —
Kraft—per cwt.—Carload Quantities Zone A Deld. 40 lb. base wgt.	
Superstandard Wrapping	$9.00/ —
No. 1 Wrapping	7.75/ 8.00
Standard Wrapping Rolls	7.00/ —
Standard Wrapping Sheets	7.50/ —
Standard Bag	6.50/ —
Tissues—Per Ream 24x36 (480) 11 lbs. Zone 1.	
Wh. No. 1 Frd.	$1.84/$2.00
Wh. No. 1 M. G.	1.94/ 2.00
Wh. No. 1½	— / —
Wh. No. 2	1.75/ —
Kraft Anti-Tar	1.65/ —
Kraft Unbl.	1.85/ —
Shred. Wh. No. 1 per lb.	.12¾/ .18
Toilet—Per Case of 100 rolls—1 M Sheets.	
Unbleached	$7.50/$10.00
Bleached	8.75/ 10.00
Paper Towels—Per Case of 3750—Zone 1.	
Wh. Jr. M'tif'd 9¼x9½	$5.15
Br. Sr. M'tif'd 10x12	3.60
Br. Jr. M'tif'd 9½x9¾	3.10
Br. Jr. Sgl. fold 10x10¼	3.15
Manila—per cwt.—C-1 f.a.	
No. 1 Jute Tag	$14.50/ —
Reg. Jute Manila	13.25/$15.50
No. 1 Manila Wrapping	9.75/ —
5 lb. Manila	10.75/ 11.25
Boards, per ton—	
Filled News	94.00/ —
Plain Chip	90.00/ —
Blchd. Mla. L-d. Chip*	105.00/ —
White Pat. coated*	120.00/ —
Kraft Liners 42 lb.	105.00/ —
Kraft Corr. .009	110.00/ —
Binders Boards	126.00/ —

* Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—

White, 16 lb.

Bonds, per cwt.

	Carton	4 C't'n	Ton
100% Rag Ext. No. 1	$59.00	$54.55	$52.30
100% Rag	52.25	48.30	46.30
75% Rag	41.50	38.30	36.70
50% Rag	33.75	30.70	29.50
25% Rag	30.25	27.45	26.35

Ledgers, per cwt.

100% Rag Ext. No. 1	$57.00	$52.65	$50.50
100% Rag	50.25	46.40	44.50
75% Rag	41.50	38.30	36.70
50% Rag	33.75	30.70	29.50
25% Rag	30.25	27.45	26.35

Sulphite Bonds and Ledgers—

White, 16 lbs.

Bonds, per cwt.

No. 1	$21.25	$19.25	$18.50
No. 2	20.25	18.30	17.55
No. 4	19.25	17.55	16.85

Ledgers, per cwt.

No. 1	$21.75	$19.65	$18.85
No. 2	20.75	18.75	18.05
No. 4	20.00	18.10	17.35

White Book, per cwt.—

Coated

	Case	Ton
No. 1 Glossy	$20.40	$19.50
No. 2 Glossy	19.15	18.30
No. 3 Glossy	18.40	17.60
Uncoated		
No. 1 Antique (Watermarked)	15.90	15.15
No. 2 Offset	15.15 to 17.90	14.60 to 17.10
A Grade E. F.	14.90	14.25
A Grade S. C.	15.40	14.65
B Grade E. F.	13.90	13.30
B Grade S. C.	14.40	13.70

Wood Pulp

Fourth Quarter

Domestic mill contract prices delivered with varying freight allowances.

	Per Short ADT
Groundwood	$80.00/ $81.00
Unbleached Sulphite	124.00/ —
Bleached Sulphite	125.00/ 135.00
Bleached Soda	130.00/ 135.00
Bleached Sulphate	155.00/ 165.00
Unbleached Sulphate Northern	120.00/ 130.00
Unbleached Sulphate Southern	110.00/ 125.00

Canadian Quotations

Prices delivered with varying freight allowances unless otherwise specified:

	Per Short ADT
Bleached Sulphate	$150.00/$160.00
Unbleached Sulphate	125.00/ 135.00
Unbleached Sulphite	125.00/ 126.00
Bleached Sulphite	125.00/ 135.00
Glassine Unbleached Sulphite (no freight allowance)	120.00/ —
Bleached Soda	130.00/ —
Groundwood	80.00/ 85.00
Sideruns Pulping News	80.00/ 90.00

Swedish Quotations

On dock, Atlantic Ports

Bleached Kraft	$165.00/ —
Bleached Sulphite	165.00/ —
Unbleached Sulphite	140.00/ 149.00
Unbleached Kraft	127.50/ —

Finnish Quotations

On dock, Atlantic Ports

	Per Short ADT
Bleached Sulphite	$165.00/ —
Unbleached Sulphite	140.00/ 143.00
Unbleached Sulphate	127.50/ —

Norwegian Quotations

On dock, Atlantic Ports

	Per Short ADT
Bleached Sulphite	$165.00/$175.00

New Domestic Cotton Cuttings

(F.o.b. Ship. Pt. Plus Dealer's Commission)

White Shirt	$11.00/ $11.50
Unbleached Muslin	11.50/ 12.00
Light Silesias	9.00/ 9.25
White Back Blue Overalls	9.00/ 9.50
Blue Overalls	8.00/ 8.25
Fancy Shirt	6.50/ 7.00
Light Percales	8.50/ 8.75
Light Prints	7.50/ 7.75
No. 1 Washables	5.00/ 5.25
Bleachable Khaki	7.00/ 7.50
Unbleachable Khaki	6.00/ 6.50
Cottonades	5.50/ 5.75

Old Domestic Cotton Rags

(F.o.b. Ship. Pt. Plus Dealer's Commission)

	Per 100 lbs.	
No. 1 Whites, Repacked	$5.50/	$6.00
No. 1 Whites Miscellaneous	4.50/	5.00
No. 2 Whites Repacked	3.50/	3.75
No. 2 Whites Miscellaneous	3.00/	3.50
Blue Overalls	3.75/	4.00
Thirds and Blues Repacked	3.25/	3.50
No. 1 Roofing Rags	1.60/	1.70
No. 2 Roofing Rags	1.50/	1.60
No. 3 Jute Bagging	1.40/	1.50
No. 4 Brussels & hrd. bck'd crpts.	1.40/	1.50
No. 5A Roofing Rags	1.40/	1.50

New Foreign Cotton Cuttings

(Prices to Mill, F.o.b. Dock, N. Y.)

	Per 100 lbs.	
New Dark Cuttings	$5.50/	$5.75
New Mixed Cuttings	6.25/	6.50
Light Silesias	9.25/	9.50
Light Flannelettes	9.25/	9.50
New White Cuttings	12.00/	13.00
New Unbleached Cuttings	12.25/	13.00
Fancy Shirt Cuttings	6.50/	7.00
Light Prints	7.75/	8.00
Bleachable Khaki, No. 1	7.00/	7.50
Unbl. Khaki, No. 1	6.25/	6.75

Old Foreign Rags

(Prices to Mill, F.o.b. Dock, N. Y.)

	Per 100 lbs.	
No. 1 White Cottons	$8.00/	$10.00
No. 2 White Cottons	7.00/	8.00
No. 3 White Cottons	6.00/	6.50
No. 4 White Cottons	4.00/	4.50
Extra Light Prints	6.50/	7.00
Old Light Prints	4.50/	5.00
Med. Light Prints	4.00/	4.50
Dutch Blue Cottons	5.25/	5.50
Checks and Blues	4.00/	4.25
Linsey Garments	2.30/	2.40
Dark Cottons, European	2.20/	2.30
Dark Cottons, Egyptian	3.20/	3.30
Old Shopperies	2.10/	2.20
New Shopperies	2.15/	2.25

Bagging

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.	
Foreign Gunny, No. 1	$7.25/	$7.50
Domestic Gunny, No. 1	7.25/	7.50
Heavy Wool Tares	6.50/	6.75
No. 1 Scrap Baggings	6.00/	6.25
Roofing Bagging	1.50/	1.75
Foreign Manila Rope	6.00/	6.25
Domestic Manila Rope	6.25/	6.50
Jute Strings	5.00/	5.25
No. 1 Sisal Strings	5.25/	5.50
Mixed Strings	1.75/	2.50

Waste Paper

Base Prices to Mills for Average Packings F.o.b. New York, Baled

	(Per Ton)	
No. 1 Hard White Envelope Cuts	110.00/	120.00
No. 1 Hd. Wh. Shavings, unruled	100.00/	110.00
Super Soft White Shavings	100.00/	105.00
No. 1 Soft White Shavings	90.00/	95.00
No. 1 Fly Leaf Shavings	45.00/	—
No. 1 Gd'wd Fly Leaf Shavings	35.00/	—
No. 1 Heavy Books & Magazines	19.00/	21.00
Mixed Books	13.00/	15.00
No. 1 White Ledger	60.00/	65.00
Col. Ledger	40.00/	45.00
Manila Tab. Cards	65.00/	70.00
New Manila Envelope Cuttings	70.00/	80.00
Extra Manilas	20.00/	25.00
Mxd. Kraft, Bag Cuttings	60.00/	70.00
Kraft Envelope Cuttings	80.00/	90.00
Triple Sorted, No. 1 Brown Soft Kraft	40.00/	45.00
New Kraft Corrugated Cuttings	35.00/	40.00
No. 1 Assorted Old Kraft	35.00/	40.00
Used Kraft Bags	35.00/	40.00
New Jute Corrugated Cuttings	18.00/	—
Old Corrugated	14.00/	15.00
No. 1 News	12.00/	13.00
No. 1 Mixed Papers	7.00/	8.00
Box Board Cuttings	7.00/	8.00
White Blank News	65.00/	70.00
Overissue News	16.00/	18.00
Mill Wrappers	14.00/	16.00

Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)		
Coarse Polished—India	.35½/	.36½
Fine Polished India	.41½/	.45
Unpolished—Paper Makers	.32¼/	.34½
Tube Rope	.33¼/	.35½
Wrapping	.36 /	.38¾
Cotton	.58 /	.60
Polished Cotton	.55 /	—
(Hard Fiber)		
Mex. Sisal	.21 /	.27
Manila (Reprocessed)	.31 /	.35
(American Hemp)		
Polished Hemp	.46½/	.48
Unpolished	.35 /	.37¼

PHILADELPHIA

Domestic Rags (New)

(F.o.b. Eastern Shipping Point)

White Shirt	.10½/	.11
Light Silesias	.07½/	.08
Black Silesias, soft	.05½/	.06
Unbleached Muslin	.10½/	.11¼
Washable Prints	.06½/	.07
Washable No. 1	.05 /	.05½
Blue Overall	.07½/	.08
Washable Shredding	.02¾/	.03¼
Fancy Percales	.06¾/	.07¼
Unbleachable Khaki	.05½/	.06½
Bleachable Khaki	.06¼/	.06¾
Men's Corduroy	.05½/	.06
Ladies' Corduroy	.05 /	.05½
Cottonades	.05½/	.06

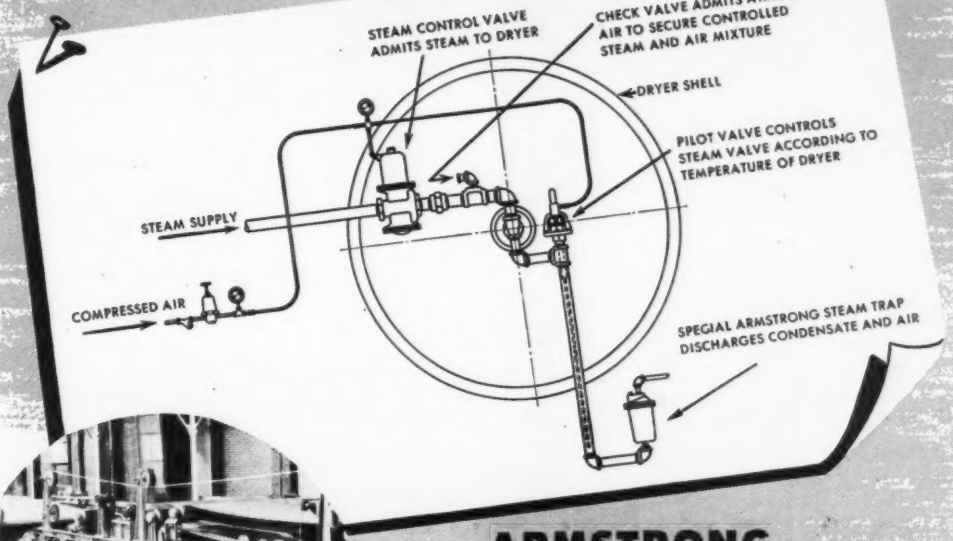
Domestic Rags (Old)

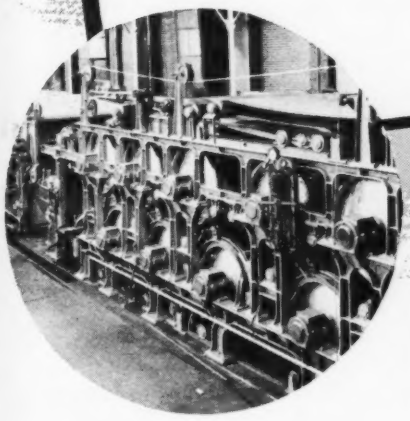
(F.o.b. Eastern Shipping Point)

White No. 1—Repacked	4.50 /	5.00
Mixed White	4.00 /	4.25
White No. 2—Repacked	3.50 /	3.75
Thirds and Blues—		
Miscellaneous	2.50 /	2.75
Repacked	3.00 /	3.25
Domestic No. 1 Roofing Stock	1.55 /	1.60
Domestic No. 2 Roofing Stock	1.45 /	1.50
Roofing Bagging	1.35 /	1.40
Old Manila Rope	— /	5.50

(Continued on page 52)

A NEW ANSWER
to an old drying problem


STEAM CONTROL VALVE ADMITS STEAM TO DRYER
CHECK VALVE ADMITS ATMOSPHERIC AIR TO SECURE CONTROLLED STEAM AND AIR MIXTURE
DRYER SHELL
PILOT VALVE CONTROLS STEAM VALVE ACCORDING TO TEMPERATURE OF DRYER
STEAM SUPPLY
COMPRESSED AIR
SPECIAL ARMSTRONG STEAM TRAP DISCHARGES CONDENSATE AND AIR



ARMSTRONG
Individual Dryer
TEMPERATURE CONTROL

Eliminates Picking and Curling

ARMSTRONG Individual Dryer Temperature Controls are used to accurately maintain reduced temperatures in the first four or five dryers at the wet end of a paper machine. This keeps the paper from sticking to the surface of the dryer and prevents curling due to over-drying one side of the sheet. Each dryer is controlled independently of any other dryer and can be regulated at any point from 100° to 250° F. Temperatures below 212° F are secured by controlling a mixture of steam and air in the dryer. Above 212° F, no air is mixed with the steam and control is entirely by steam pressure.

- CONTROLLED MIXTURE OF STEAM AND AIR MAINTAINS REDUCED TEMPERATURES
- EACH DRYER CONTROLLED INDEPENDENTLY
- ACCURATE AND UNIFORM
- 100° F TO 250° F RANGE
- DEPENDABLE
- COMPLETELY AUTOMATIC
- PROVEN AND GUARANTEED

The Armstrong Control is simple, dependable, and guaranteed to give satisfaction. For complete information write for BULLETIN 187 which fully describes the principle of operation and the component parts of the control.

ARMSTRONG MACHINE WORKS
818 Hoffman Street, Three Rivers, Mich.

INVERTED BUCKET STEAM TRAPS • PAPER MILL SPECIALTIES

Prices

CONTINUED FROM PAGE 50

Bagging

(F.o.b. Eastern Shipping Point)

Foreign Gunny No. 1	nominal
Domestic Gunny No. 1	.07¼/ .07¾
Sisal Strings No. 1	.04½/ .05
Sisal Strings No. 2	.03½/ .04
Sisal Jute	.02½/ .03
No. 1 Scrap	.06½/ .07
No. 2 Scrap	.03 / .03½

Old Papers

F.o.b. Phila. Mill Prices, Baled

	Per Ton
No. 1 Hd. White Envelope Cuts..	120.00/ 125.00
No. 1 Hd. Wh. Shavings, unruled	100.00/ —
Soft White Shavings	85.00/ —
White Blank News	65.00/ 75.00
No. 1 White Ledger	65.00/ —
No. 1 Heavy Books & Magazines	20.00/ 22.00
New Manila Envelope Cuttings	75.00/ —
No. 1 Assorted Old Kraft	35.00/ 40.00
No. 1 Mixed Paper	7.00/ 8.00
Box Board Cuttings	8.00/ 10.00
New Kraft Corrugated Cuttings	55.00/ 60.00
Old Corrugated	14.00/ 16.00
Overissue News	15.00/ 16.00
No. 1 News	11.00/ 13.00

BOSTON

Old Papers

F.o.b. Boston, Mill Prices, Baled

	Per 100 lbs.
No. 1 Hd. Wh. Shavings, unruled	$6.25 /$6.75
No. 1 Hard White Shavings, ruled	6.00 / 6.50
Soft White Shavings	6.00 / 6.25
No. 1 Fly Leaf Shavings	— / —
No. 2 Fly Leaf Shavings	4.25 / —
No. 1 Grdwd. Fly Leaf Shvgs.	1.75 / 2.00
No. 2 Groundwood Fly Leaf Shavings	1.50 / 1.75
Mixed Colored Shavings	2.00 / 2.25
New Manila Env. Cuts, one cut	4.50 / 4.75
Hard White Envelope Cuts, one cut	7.00 / —
Triple S'ted No. 1 Br. Soft Kraft	3.75 / 4.00
Mixed Kraft Env. & Bag Cuttings	4.00 / 4.25
Kraft Envelope Cuttings	5.00 / 5.50
No. 1 Heavy Books & Magazines	1.75 / —
New Manila Env. Cutt'gs, one cut	2.35 / —
New Manila Envelope Cuttings	4.00 / 4.25
White Tabulating Cards	5.00 / —
Groundwood Tabulating Cards	1.50 / 1.75
White Blank News	2.25 / 2.50
No. 1 Assorted Old Kraft	3.50 / 4.00
No. 1 Mixed Paper	.47½/ —
Overissue News	.90 / 1.00
No. 1 News	.55 / .60
Box Board Cuttings	.60 / .70
New Corrugated Cuttings, Kraft.	2.75 / 3.00
Old Kraft Corrugated Containers	2.00 / 2.25
Old Corrugated Containers	— / 1.10
Jute Corrugated Cuttings	1.07½/ —
Paper Strings	2.00 / 2.25

Bagging

(F.o.b. Boston)

Foreign Gunny	nominal
Domestic Gunny	7.00 / —
No. 1 Old Rope	6.25 / —
Mixed Strings	1.50 / —
Transmission Rope—	
Foreign	nominal
Domestic	3.00 / 3.50
Foreign Manila Rope	nominal
Domestic Manila Rope	6.25 / —
Jute Carpet Threads	6.00 / —
Bleachery Burlap	— / 8.00
Scrap Burlap—	
Foreign	6.50 / 6.75
Domestic	6.50 / 6.75
South America	6.50 / 6.75
Foreign Wool Tares	7.50 / —
Domestic Wool Tares	7.50 / —
Austr. Wool Pouches	7.50 / —
New Zealand Wool Pouches	5.00 / —
New Burlap Cuttings	7.00 / —
Heavy Baling Bagging	7.00 / 7.50
Paper Mill Bagging	— / 5.00
No. 1 Roofing Bagging	1.75 / —

Domestic Rags (New)

(F.o.b. Boston)

New Light Prints	.07¼/ —
Fancy Percales	.08 / —
White No. 1 Shirt	.11 / .11¾
Light Flannelettes	.03 / .08½
Canton Flannels, Bleached	.10 / .11
Underwear Cutters, Bleached	.11½/ —
Underwear Cutters, Unbleached	.11 / .12
Silesias No. 1	.08 / .08½
Black Silesias	.04½/ —
Red Cotton Cuttings	.05¾/ —
Blue Overalls	— / .08½
Soft Unbleached	.11 / .12
Blue Cheviots	.08 / .08½
Fancy	.06 / —
Washable	.06 / —
Khaki Cuttings	.06½/ .07½
Corduroy	.04 / —
Men's Corduroy	.04 / —
Khaki Canvas	— / .06
B. V. D. Cuttings	.11½/ —

Domestic Rags (Old)

(F.o.b. Boston)

	Per 100 lbs.
No. 1 Whites, Repacked	5.00 / 5.50
No. 1 Whites, Miscellaneous	4.50 / 5.00
No. 2 Whites, Repacked	— / —
No. 2 Whites, Miscellaneous	2.65 / —
Twos and Blues, Repacked	2.75 / —
Old Blue Overalls	4.00 / 4.50
Thirds and Blues, Repacked	2.20 / —
Black Stockings	3.50 / 4.00
No. 1 Roofing Stock	1.70 / —
No. 2 Roofing Stock	1.60 / —
No. 3 Roofing Stock	1.50 / —
No. 4 Roofing Stock	1.50 / —
No. 5, Quality A.	1.60 / —
Old Manila Rope	6.00 / —

Foreign Rags

(F.o.b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F.o.b. Chicago) Mill Prices, Baled

Shavings—		
No. 1 Hard White Envelope cuts, one cut	$120.00/	—
No. 1 Hard White Shavings, unruled	114.00/	—
No. 1 Soft White Shavings	100.00/	—
No. 1 White Ledger	60.00/	65.00
No. 1 Heavy Books & Magazines	28.00/	30.00
White Blank News	55.00/	—
Mixed Kraft Env. & Bag Cuttings	80.00/	—
No. 1 Assorted Old Kraft	25.00/	—
Overissue News	20.00/	—
No. 1 News	— /	16.00
No. 1 Mixed Paper	9.00/	—
Old Corrugated	15.00/	—
Mill Wrappers	11.00/	—

Markets

Blanc Fixe

Supply good; demand steady. Pulp is currently quoted at $85.00 in bags, car lots at works, 6 cents per pound, l.c.l., deld.; by-product $75.00 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

Bleaching Powder

Supply adequate. Delivery good. Export improves. Prices range from $4.25 to $4.75 per 100 pound drums, l.c.l. works.

Casein

Demand continues light. Argentine market weak with prices softer as flush season approaches. Domestic prices firm, supply light. Current prices on processed acid precipitated casein at 28½ to 32 cents per pound for domestic grades and 25 to 26 cents for imported grades, f.o.b. shipping point.

Caustic Soda

Liquid types in easier supply. Dry types continue short. Solid caustic is reported at $3.10 per cwt.; flaked and ground is quoted at $3.50 per cwt. in 400 pound drums. $4 to $4.25 per cwt. in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.50 per cwt.; liquid 73 percent in tank cars at $2.60 per cwt.; at works.

China Clay

Demand steady. Supply excellent. Domestic filled clay is $9 to $11.50 per ton, car lots; coating clay is $14 to $22. Imported clay quotation, short tons, $16 to $35, export warehouse.

Chlorine

Southern strike settled. Supply approximately in balance. Currently quoted at $2.40 per cwt. in single unit tank cars; at $2.70 to $3.90 per cwt., in multi-unit tank cars, f.o.b., works.

Rosin

Prices rising as supply outside loan lessens. Buying improves. Export buying awaits ECA dollars. Gum rosin in drums per 100 pounds net in car lots, f.o.b. Savannah; B, $6.50; G, H, I, K, $7.50. Wood rosin per 100 pounds net, car lots, f.o.b. Savannah; B, $5.00; FF, $6.50.

Rosin Size

Heavy demand. Supply good. Seventy percent gum and pale wood grades, tank cars, $6.30 to $6.40, f.o.b. southern shipping point.

Salt Cake

Heavy kraft production keeps demand ahead of supply. Production under contract. Domestic salt cake quoted at $25 to $28.

Soda Ash

Supply continues to improve. Deliveries up to schedule. Production gains shown. Current prices, car lots per 100 pounds; in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.

Sodium Bicarbonate

Demand eased by better supply of other alkalis. Production good. Reported as $1.95 per cwt. paper bags, carload lots.

Starch, Corn

Prices steady. Supply good. Demand moderate. Record crop forecast. Pearl grade quoted at $6.66 per 100 pounds; powdered starch at $6.77 to $6.81 per 100 pounds; car lots, New York.

Starch, Potato

Supply ample with heavy crop forecast. Inquiry good. Prices lower. High grade quoted at $5.60 cwt. f.o.b. Idaho, $6.25 f.o.b. Aroostook; Pearl grade $6.10 cwt. f.o.b. Aroostook.

Sulphate of Alumina

Demand increased. Supply steady. The commercial grades are quoted from $1.50 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

Sulphur

Demand active. Supplies steady. Production shows heavy gain. Annual contracts are quoted at $16 to $18 per long ton, f.o.b. mines; the price f.o.b. at Gulf ports is $17.50 to $19.50 per long ton.

Talc

Prices steady. Demand continues far in excess of supply. Domestic grades are currently quoted at $23 per ton in paper sacks, f.a.b. mills; Canadian at $35 and up per ton. All prices in car lots.

Tapioca Flour

High grades in fair supply and demand. Superior highs range from $10.25/$11.00 cwt.; medium grades $9.25 cwt., on dock Atlantic and Gulf ports; low grades range from $7.25/$7.50 cwt., on dock N. Y. Medium and low grades in adequate supply.

Titanium Dioxide

Supply of paper grades continues unequal to demand. Shipments on allocation. Anastase 18c pound carload lots, 18½-19c l.c.l., rutile, 20c pound carload lots, 20½-21c l.c.l.; 50-pound bags, f.o.b. plant, minimum freight allowance.

ROBERT M. HONEGGER

—general manager of the Buffalo plant of Farrel-Birmingham Co., Ansonia, Conn., has been elected to the directorate of that firm . . . Mr. Honegger joined the organization in 1925 as a member of the engineering department

Package Machy. Transfers

SPRINGFIELD, Mass. — Harold Mosedale, formerly in the New York office of the Package Machinery Co., is now in the home office at East Longmeadow. Ernest A. Hjelm of the Chicago office has been transferred to New York to replace Mr. Mosedale. C. Robert Strehlau, formerly in the Cleveland office, has been shifted to Chicago, Robert S. Lyons has been moved from New York to Cleveland, and William H. Kiel goes from East Longmeadow to New York.

Junior Tearing Tester

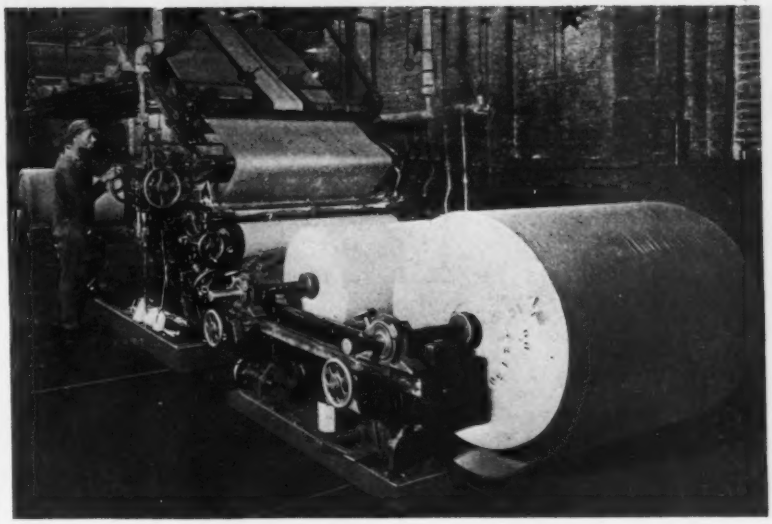
PHILADELPHIA—The Thwing-Albert Instrument Co., is offering the Elmendorf Junior Tearing Tester as a smaller running mate to the Standard Elmendorf Tearing Tester. It has a capacity one-eighth that of the standard instrument, 200 grams. It is available in four calibrations, direct reading in grams when testing either one, two, four, or eight sheets.

Calkin Now Consultant

NEW YORK—John B. Calkin has formed his own consulting business in the pulp and paper, and chemical process industries, with offices at 500 Fifth avenue. He was formerly coordinator of research for the Union Bag & Paper Corp.

Link Belt Names Weber

CHICAGO—H. F. R. (Bob) Weber has been named representative of the Link Belt Co., to serve the pulp and paper industry, with offices at the firm's plant, 300 West Parshing road.



65-hp corrugator machine drained by C-B System. Combining plates in background.

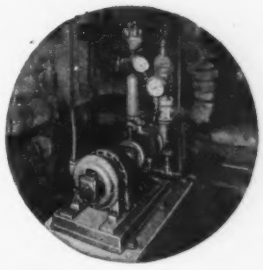
Heat Costs Money—*Save It!*

with a *Cochrane C-B System*

If the steam from your corrugators and combiners is flashed off to a vented receiver on its way back to the boiler, you're losing valuable heat units . . . and heat costs money. If condensate and insulating entrained air are not removed from the steam system as soon as they are formed, they cool the utilization equipment and—again you're wasting valuable heat units . . . losing money. Heat is expensive—save it!

The Cochrane C-B high pressure system of condensate return is the modern solution to steam economy. In this "closed circuit" system there is no "flashing" to a vented receiver or open well. The condensate is returned to the boiler at the highest possible temperature, saving as high as 15% on fuel bills. This positive removal of condensate insures higher and more uniform temperatures in the corrugators and combiners thus stepping up processing time and increasing production.

For detailed information on the Cochrane C-B System, write today for our Bulletin 3250.



The jet loop pump . . . heart of the Cochrane C-B System.

COCHRANE

COCHRANE CORPORATION
3103 N. 17th Street
Philadelphia 32, Pa.

CONDENSATE C-B BOOSTER SYSTEM

OF HIGH PRESSURE, HIGH TEMPERATURE CONDENSATE RETURN

Financial Record

Preferred Stocks	Per Share Calendar Year 1947	Earnings 12 Mos. to Approx. 6/30/48	Indic. Annual Divid. Rate	Oct. 6 Closing Market Price
Armstrong Cork Co. $3.75 Cum.	$38.64*	$43.53*	$3.75	92¼
Armstrong Cork Co. $4.00 Cum. Conv.	38.64*	43.53*	4.00	109
Celotex Corp. 5% Cum.	24.25c	26.25g	1.00	
Champion Paper & Fibre $4.50 Cum.	65.90f		4.50	
Container Corp. of Amer. 4% Cum.	102.74	88.25	4.00	
Crown Zellerbach $4.20 Cum.	56.40f	55.07g	4.20	
Crown Zellerbach $4.00 Cum. Conv. 2nd	211.39f	217.70g	4.00	
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	9.16	8.59	2.50	50⅜
Flintkote Co. $4 Cum.	81.91	80.04	4.00	
Robert Gair Co. Inc. 6% Cum.	18.01	16.26	1.20	
International Paper Co. $4 Cum.	236.51	245.85	4.00	
Johns-Manville $3.50 Cum.	128.81	134.48	3.50	105
Kimberly Clark Corp. 4½% Cum.	70.03	73.34	4.50	
Kimberly Clark Corp. 4% Cum. Conv. 2nd	95.88	100.73	4.00	97½
MacAndrews & Forbes 6% Cum.	62.20	62.56	6.00	
Mead Corp. 4¼% Cum.	81.56	79.68	4.25	
Mead Corp. 4% Cum. Conv. 2nd	53.34	51.75	2.00	36⅞
Paraffine Cos. Inc. 4% Cum. Conv.	152.76a		4.00	
Rayonier Inc. $2 Cum.	13.58	15.44	2.00	32¾
St. Regis Paper Co. 4.40% 1st A	76.93	84.43	4.40	
Scott Paper Co. $3.40 Cum.	43.95	50.24	3.40	
U. S. Gypsum Co. 7% Cum.	211.34	362.32	7.00	
United Wallpaper Inc. 4% Cum. Conv.	(d)1.35a		2.00	
West Virginia Pulp & Paper 4½% Cum.	75.75c	78.49g	4.50	
Common Stocks				
APW Products Co.	$1.24	$1.46	$0.25	4⅝
American Writing Paper Corp.	1.61	.47	0.25	
Armstrong Cork Co.	6.41	7.17	2.60	51
Celotex Corp.	6.59c	7.15g	2.00	27⅜
Certain-Teed Prods. Corp.	3.75	3.92	0.90	14½
Champion Paper & Fibre	5.57f		2.00	
Congoleum Nairn Co.	4.55	5.12	2.00	
Container Corp. of America	10.09	8.50	2.00e	36¼
Crown Zellerbach	6.81f	6.53g	2.00	29⅝
Dixie Cup Co.	5.87	5.37	1.00	29¾
Flintkote Co.	6.27	5.83	2.50	31¾
Robert Gair Co. Inc.	2.83	2.59	0.40	7⅛
Great Northern Paper Co.	4.56	4.44	2.40	
International Paper Co.	15.02	15.62	4.50	58
Johns-Manville Corp.	3.17	3.28	1.40	38
Kimberly-Clark Corp.	4.29	4.52	1.40	20½
MacAndrews & Forbes Co.	3.68	3.70	2.50	
Marathon Corp.	3.39c	3.93g	1.40	22¼
Mead Corp.	7.33	7.10	2.00	18⅝
National Container Corp.	4.13	3.11	1.20	10½
Paraffine Cos. Inc.	2.40a		1.20	22
Rayonier, Inc.	7.30	8.47	2.00	31⅝
Ruberoid Co.	10.88	12.13	2.75	62
St. Regis Paper Co.	2.66	2.87	0.60e	11
Scott Paper Co.	3.02	3.49	2.20	47¾
Sutherland Paper Co.	6.87	6.56	2.50	
Taggart Corp.	1.29		0.60	
Union Bag & Paper Corp.	7.93	8.35	3.00	33⅜
United Board & Carton	4.95b	3.39h	1.00	10⅛
U. S. Gypsum Co.	10.00	12.49	6.00	97
United Wallpaper	(d)0.11a		——	3⅞
West Virginia Pulp & Paper	11.40c	11.56g	4.00	

(a) Year ended 6/30/48
(b) Year ended 5/30/48
(c) Year ended 10/31/47
(d) Deficit
(e) Plus extras
(f) Year ended 4/30/48
(g) 12 months to approximately 7/31/48
(h) 12 months to 8/21/48
(*) Pro forma

Dividends Declared

Central Paper Co.—Year to June 30: Net income $899,062 or $3.56 a common share, against $575,244 or $2.38 a share, the year before.

Clopay Corp. and Subsidiary—Twelve months to June 30: Net income, $840,994 or $1.15 a common share on net sales of $13,531,529. No comparison is available.

Robert Gair Co., Inc., and wholly-owned subsidiaries report net profit applicable to common stock at $2,683,623.14 or $1.51 per share for the six months ended June 30, 1948. This compares with $3,046,187.24 and $1.75 for same period of 1947. The quarter ended June 30, 1948, showed net profit at $1,379,976.84 or 78 cents a share.

Lake St. John Power & Paper Co., Ltd., declared dividend of $2.50 per common share payable Aug. 11. Earlier payments were $1.50 on April 15 and Jan. 15. Control of the company is held by St. Lawrence Paper Mills Co., Ltd.

Howard Smith Paper Mills, Ltd., voted quarterly dividend of 50 cents on common, payable Oct. 30 to holders of record Sept. 30. The company previously paid 25 cents at quarterly intervals.

Southern Advance Bag & Paper Co., Inc., voted regular quarterly dividend of 25 cents plus an extra of 50 cents on common, payable Sept. 30 to holders of record Sept. 30. Like dividend was paid June 30.

St. Regis Paper Co. reported net sales of $83,907,818 for the six months period of 1948, compared with $69,033,514 for 1947's period. Net income of $8,744,935 compares with $7,696,147 in the first six months of 1947.

Stock Dividend Planned

NEW YORK — Directors of the National Paper and Type Co., on September 28, proposed a 100 percent common stock dividend, subject to approval by stockholders at the annual meeting on November 17 of an increase in authorized common stock from 65,000 to 260,000 shares. The company will apply to the New York Curb Exchange for listing of the preferred and common stocks, it is stated.

Indexes

Index of general business activity for the week ended September 25 eased to 147.0 from 147.1 in the preceding week, compared with 142.3 in the corresponding week of 1947.

Index of paperboard production dipped to 170.9 from 175.8 in the preceding week, compared with 166.7 in the corresponding week of 1947.

Comparative ratios of U.S. paper and paperboard production to mill capacity as reported by AP&PA are shown below:

	Sept. 25 1948	Sept. 18 1948	Sept. 27 1947	Sept. 28 1946	Sept. 29 1945
Paper**	99.8	‡97.3	107.0	106.6	98.1
Paperboard .	94.0	97.0	102.0	101.0	96.0

** Indicates 1948 volume of 179,442 tons. Comparable week 1947, 169,577 tons. ‡ Revised figure.

Paperboard Production (Tons)

	Sept 25 1948	Sept. 18 1948	Sept. 27 1947
Production	188,146	192,334	183,554
New Orders	165,103	173,044	180,644
Unfilled Orders ..	358,586	388,608	437,550

Percent of Activity, Current	94%
Percent of Activity, Year to Date	96%

Cooperstown Logging Equipment Demonstration

By E. P. MC GINN
Industrial Editor

More than 2,500 interested visitors took advantage of the opportunity to see modern logging equipment and machinery, in action, at Mike Kalan's farm near Cooperstown, N.Y., on September 8, when approximately one-half a million dollars' worth of equipment was demonstrated.

The affair was sponsored by the Northeastern Forest Experiment Station and the New York Section of the Society of American Foresters, whose summer meeting was held at Cooperstown at the same time as the equipment show.

The equipment was set up on a site containing about 20 acres of rolling pasture land surrounded by hardwood forest. Most of this woodland was rather heavily covered with beech, birch and maple, with the majority of trees being five to 15 inches in diameter and a few as large as 20 to 24 inches in diameter.

There were two portable sawmills, one Frick and one Turner, in almost continuous operation. Some of the lumber produced from these mills was used to build booths, stands, etc. The logs for these mills were supplied by the operators of power saws and skidding and loading equipment.

Each individual piece of equipment was demonstrated to the groups of visitors as they passed around the area. The smaller items of equipment, such as the portable chain and bow saws, were displayed at the booths of the respective distributors or manufacturers. The performance of each different saw was shown by actual tree-felling and bucking demonstrations.

Power Saws

Four types of chain power saws were shown, as follows: (1) Two-man chain saws suitable for felling and bucking large trees (the larger models of this saw are suitable for trees up to 4 feet in diameter); (2) Bow saws capable of cutting logs up to two feet in diameter; (3) One-man chain saws which will handle smaller trees to up 18 inches in diameter; and (4) Portable circular saws for cutting smaller trees and brush.

Large yellow birch felled by Disston two-man chain saw.

Tree Planter

One of the most interesting pieces of equipment at the show was the "Treep" tree planter. This is a sled type machine designed to be pulled by a tractor. With it two men can plant 10,000 or more trees per day on almost any kind of ground.

The two sled runners total 385 square inches of contact surface to provide good support on both level and uneven surfaces and on hard or soft soil. Steel keels on the runners prevent side-slipping on hills.

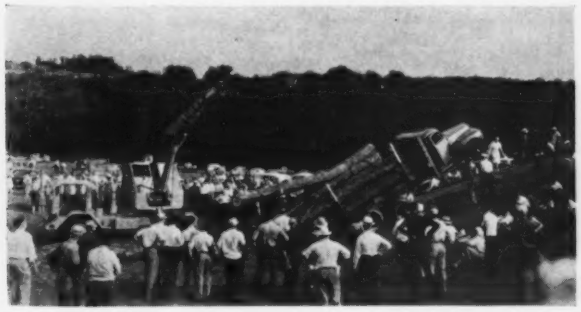
The machine is provided with pneumatic tired wheels for fast towing on roads when the runners are lifted. During the planting operation the runners are down and the wheels are up. A hydraulic lifting device, the control lever of which is within easy reach of the operator, simplifies the operation of raising and lowering the runners.

The operating principle of the planter is quite simple. A furrow is opened up by a coulter wheel, followed by a middle-buster plow. The operator inserts trees in the furrow at proper intervals and the packing wheels then close the furrow as they pass over it. The line of plants passes between the two packing wheels.

Two different sizes of coulters are provided, a large one for soils with scattered stones or tree roots and a smaller wheel for ground having round or flat stones. The plow opens up the slit made by the coulter, thus forming a furrow but not turning over the soil. The tops of the moldboards stand straight up, to form planting guides past which the soil flows and slips back into the furrows. The plow is weighted to hold it at full depth in heavy soils and to force the point quickly into the ground after having been raised over an obstruction by the coulter.

The packing wheels float freely on arms attached to the forward part of the frame. Thus they remain on the ground regardless of the position of the main body.

Spectators watch operation of Bornet one-man chain saw.

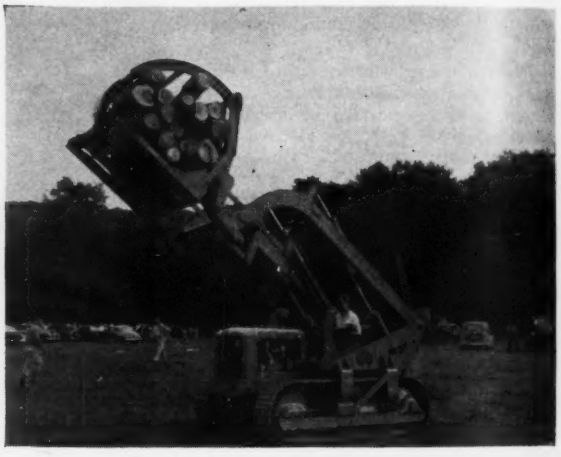


Unscheduled! Overloaded truck being unloaded by Michigan crane.

Bucking logs with a Poulan Bow-Type power saw.

Michigan loader handles large logs with tongs or sling.

Carco Sulky hauls out a large beech tree.



Drott skid-loader is especially suitable for handling pulpwood.

1200-1500 trees per hour may be planted with the TREEP.

Timber-Tosser really tosses large logs onto the truck.

Two large tree boxes are located one on each side of the machine. These boxes, which are removable, hold from one to two thousand trees.

Sulkies and Skidders

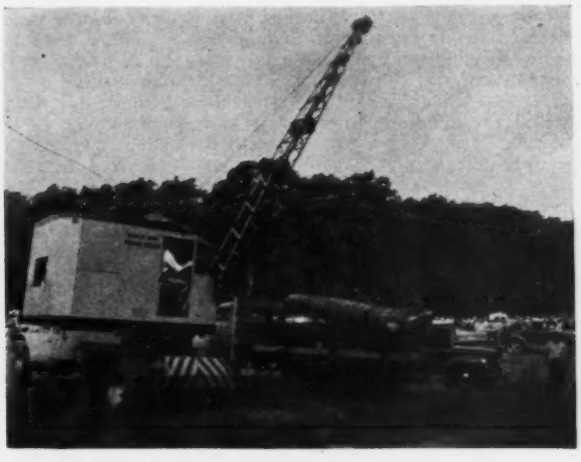
E. J. (Swede) Anderson, logging boss of the Houghton Division of Marathon Paper Co., with the help of George Carr and Bob Sinclair of the Pacific Car & Foundry Co., demonstrated the use of a Carco sulky for the simultaneous skidding of several medium size logs to the loading area. When this equipment is used on the Pacific Coast a single large log constitutes a load but with the smaller logs in the East and midwest, several can be handled at once by fastening cables to the ends and bringing them to the sulky with the power winch. The ends are then raised in the sulky and the logs are hauled to the loading area.

Other equipment similar to this in-

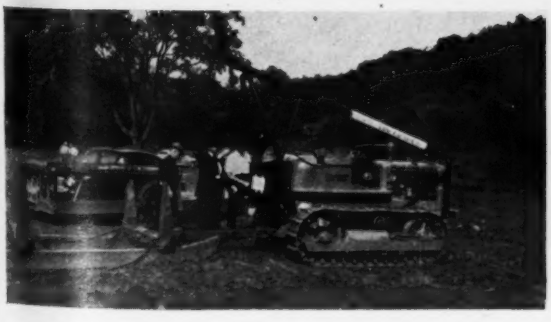
One-man bow saw demonstrated by Precision Mfg. Co.

Somer's pulpwood loader is a portable chain conveyor.

Disston one-man chain saw in operation.



"Quick-Way" truck crane handles large saw logs.



Witherill loader with sled, left, and trailer, background.

Ralph Zimmerman and Jim Gilmore at a Mall two-man saw.

cluded the Hyster and Isaacson sulkies and the Allis-Chalmers tractor and sulky. The Hyster was equipped with a caterpillar bulldozer-tractor and the Isaacson was used with an International tractor. The ease with which all of these machines were able to snake felled trees into position and skid logs to loading areas was shown many times during the day.

Some of the equipment was more highly specialized. For example a machine called "Loggers Dream" consists of a specially built truck equipped with a boom and winch suitable for skidding and loading. This is especially designed to handle saw logs in the level, somewhat open country found in the South. The manufacturers of this equipment also make machines somewhat similar for use in handling pulpwood.

A log loader which attracted considerable attention from the visitors is called the "Timber Tosser." This name

This large beech was cut by a Reed-Prentice power saw.

Hyster sulky and Caterpiller tractor haul logs.

rather accurately describes the operation of this machine. A cradle attached to the side of the specially designed truck is lowered to the ground to receive the log which is then rolled onto it. The cradle is then swung up, actually tossing the log into the bed of the truck. Logs up to 24 inches in diameter were handled with ease during the demonstration.

A skid-loader which is especially useful for handling pulpwood is built by the Drott Mfg. Co. The Drott equipment is built on an Allis-Chalmers tractor, as shown in an accompanying illustration. This machine readily picks up large logs or stacks of pulpwood and transfers them to trucks or sleds or any other place, as required.

The Witherill loader is also built on an Allis-Chalmers tractor. This machine is especially designed for loading and hauling sleds or trailers but it may also be used for skidding.

There were two large truck cranes in operation at the show, both suitable for loading or skidding large logs with either cable slings or tongs. These machines can also handle pulpwood in slings. One of these units is manufactured by Michigan Power Shovel Co., Benton Harbor, Mich., and the other is made by the Quick-Way Co., Denver, Colo.

The John A. Roebling Sons Co. of Trenton, N.J., demonstrated a quick method of making splices in wire cables. Since almost all of the large machines use wire cables, and of course, they are also necessary for skidding and hauling, the ability to make emergency repairs to the cables is quite important.

An unscheduled event aroused considerable interest among the spectators. A truck loaded with about a dozen large logs, in attempting to climb a steep hill, became overbalanced, causing the engine and cab to be lifted off the ground. After many unsuccessful attempts to restore equilibrium to the load, it was finally removed, one log at a time, by the Michigan truck crane.

How Storage Battery Powered Trucks Cut Materials Handling Time

Tileston & Hollingsworth Co. Makes Large Savings

In the 28 years that have passed since the Tileston & Hollingsworth Co., papermaker, installed its first storage battery-powered industrial truck in its Hyde Park, Mass., mill, increased use has been found for the application of such type equipment in the mill's material handling system. Among the many benefits that have accrued to the company have been better and more intensive use of existing storage space; ease of handling in-process material, as well as incoming raw material, and quicker handling from production into outward shipment. Today a fleet of six battery-powered trucks is utilized at the mill. The fleet includes three high-lift platform trucks, a fixed platform truck, a fork truck and a combination fork and roll-handling truck.

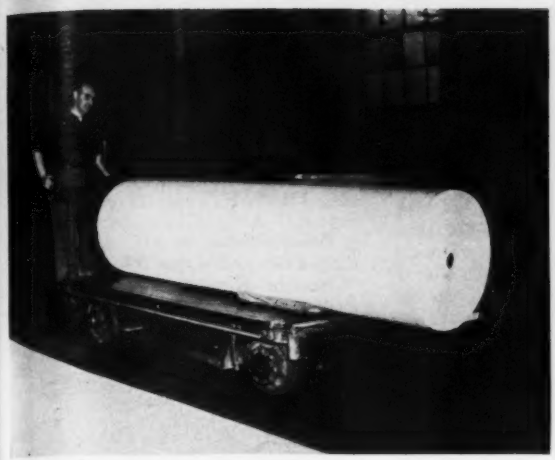
Chief items received at the mill include pulp, which comes in rolls and bales, and such bagged items as alum, starch, clay, glue, rosin, lime, soda ash and sodium aluminate. The latter items generally are received in 100-lb. bags, which are placed in interlocked load-patterns of 40 bags, on 35″ x 50″ pallets, or skids. Roll pulp, in "dry" condition, weighs from 130/140-lbs. per roll. In "wet" condition, roll weights run from 160/180-lbs.

These rolls of pulp are handled 12 to a pallet, while the baled pulp, which averages 400-lbs. per bale, is handled without pallets, five bales being carried directly on the truck's forks.

In unloading a box-car of roll pulp, from two to four men are used per car, palletizing the pulp either on the unloading dock or inside the car. When pulp is taken from the car-side directly to the beaters two men are used per car since the combination fork and roll-handling truck used in this operation has a longer distance to travel than when pulp goes into storage. This longer run permits the two men to keep filled pallets in readiness for truck pick-up. Since the railroad tracks run inside the mill structure, a considerable portion of the platform is available for storage, the truck making a short run between pick-up and deposit. This unloading area is located in a recent addition to the mill.

Prior to the use of battery-powered trucks in the handling of roll pulp, it required seven men a full eight-hour day, or 56 man hours, to unload a car. One man worked at the car, five worked with hand trucks, and one worked in the storage area. A hand truck would accommodate only five rolls of pulp on a load. The round trip time for hand trucking between car-side and storage area approximated five minutes.

Under present operations, with roll pulp being taken directly to the beaters, three men (two at the car and one operating the truck) handle a car-



One of the many intra-plant handling operations performed by storage battery-powered industrial trucks is the movement of in-process material. Rolls of paper—approximate weight 4,000 lbs.—is about to be moved from delivery platform of a winding machine to the cutters, by a fixed platform, or burden-bearing, industrial truck.

Strapped-to-skid unit-loads of flat stock are moved from the packaging department to the scales, thence to outbound carriers by highlift platform trucks. Battery-powered trucks are utilized in handling and movement of all incoming supplies; of in-process material, and for all movement to outward shipment.

load of pulp in a total of approximately 12½ man-hours.

A car-load of "dry" pulp weighs some 55,000-lbs., with about 400 rolls to a car, while the "wet" pulp, averaging the same number of rolls, has a total weight of approximately 70,000-lbs. of material to be handled, transported and deposited.

Baled pulp, per car-load, averages 82,000/83,000-lbs. In this operation only a single man is used on the car, and one man on the truck. Depending upon the ease of "breaking" the car, a total of from seven to nine man-hours are required to empty and storage a car-load.

Within the mill, bagged material and/or pulp is moved by battery-powered truck to start of process. Semi-finished product is moved to the cutting, then to the finishing and then to the shipping department, also by battery truck. Roll stock in machine-size widths is moved first by fixed platform truck from point to point intra-mill for further processing, such as cutting to specified width. In shorter lengths, the roll-handling device on the fork truck is utilized to move the paper not only in process flow but also into outward shipment.

Shipments are made both by freight car and over-the-road truck. The battery-powered trucks are used for loading and unloading box cars, while powered hand trucks normally load the highway trucks.

Flat stock is packed either in small cases or in large strapped-to-skid loads. For this handling the highlift platform trucks are utilized. Capacities of the trucks used at the Tileston & Hollingsworth mill range from 2,000/4,000-lbs., with lifts from 72 to 108 inches.

In addition to a central battery charging and changing room, four auxiliary charging stations are located about the mill. Eight batteries are used to service the six trucks. Preventive maintenance is practiced, the trucks being withdrawn at intervals for inspection, cleaning, greasing and oiling.

An effort is being made by the Tileston & Hollingsworth Co. to have its suppliers ship materials to the mill in unit loads. Some companies have signified that they will comply as soon as packaging methods and equipment have been installed in their plants.

Combination fork and roll-handling truck handles incoming supplies of bleached sulphite pulp between car-side and warehouse area, or beaters. Twelve rolls of pulp on a pallet constitute a unit load, weighing approximately 1,500 lbs. Three men (two unloaders and the truck operator), handle a 25- to 35-ton-carload of pulp with an expenditure of approximately 12½ man-hours.

Bleached sulphite pulp, in bales, is handled by a fork truck equipped with chisel forks. Approximate weight of load pictured is 2,200 lbs. Truck's forks are driven directly under stack of five bales in box-car, and load picked up for movement to warehouse area or directly to the beaters. Truck's operator performs entire task of unloading a 40-ton carload of baled pulp in a single shift.

Literature

American Assn. of Industrial Editors, 7445 Andrews avenue, Philadelphia 38, Pa. Survey, "A Study on Formal Education for House Organ Editors," sponsored by the association and conducted by Robert D. Breth, management consultant, Philadelphia, Pa. Technical assistance supplied by A. J. Wood & Co., market opinion and attitude research, Philadelphia and New York. The increasing importance of the industrial publication as a medium of communication between management and employees, customers and stockholders has created a special personnel problem for industry, Mr. Breth says in his foreward, i.e., where to secure professionally trained editors, competent in the mechanics of the profession and in the problems which confront modern industry. The study undertakes to answer the two-part question: What are the recognized Journalism Schools of the country doing today to provide special training and education for undergraduates who wish to become industrial editors, also for working industrial editors who desire further training.

Electric Machinery Mfg. Co., Minneapolis 13, Minn. Bulletins, 1300-PRD-189, Heavy-Duty Squirrel-Cage Induction Motors, 1300-PRD-190, 2-Pole Heavy-Duty Squirrel-Cage Induction Motors. Cut-away and sectional drawings show details of welded frame construction, protective design, modern bearings and multi-layer insulation. Bulletin 190 covers 2-pole and 189 4-pole or more.

U. S. PAPER AND BOARD: PRODUCTION, BY TYPE, JULY 1948

(Tons of 2,000 pounds)

Type of Paper	1948 July[1]	1948 June*	July 1947
ALL TYPES, TOTAL	1,688,073	1,837,459	1,625,457
Paper, total	859,175	938,655	817,030
Newsprint	72,823	74,434	66,731
Groundwood printing and specialty paper, total	64,473	74,918	65,061
Printing	41,519	48,573	41,622
Converting	21,219	23,570	17,928
Other	1,735	2,775	5,511
Book paper, total	173,763	192,320	171,234
Printing	130,858	146,723	124,312
Converting	36,471	38,167	43,320
Other	6,434	7,430	3,602
Fine paper, total	88,108	102,522	90.227
Writing, total	65,248	76,549	65,765
Rag (including index)	8,575	11,276	11,328
Chemical wood pulp	56,673	65,273	54,437
Cover and text	5,696	6,981	7,093
Bristols (except rag index)	10,151	11,395	10,714
Thin	4,923	5,749	5,437
Other	2,090	1,848	1,218
Coarse paper, total	242,186	257,059	224,444
Glassine, greaseprof and vegetable parchment	9,368	9,607	10,752
Wrapping, total	61,028	62,692	60,893
Unbleached kraft	28,924	29,601	26,985
Other	32,104	33,091	33,908
Bag, total	53,342	53,607	47,408
Unbleached kraft	48,844	49,355	44,758
Other	4,498	4,252	2,650
Shipping sack	54,054	63,449	41,440
Converting, total	64,394	67,704	63,951
Unbleached kraft	37,476	40,166	37,287
Other	26,918	27,538	26,664
Special industrial	19,016	23,554	16,865
Sanitary	77,063	79,128	63,291
Tissue	18,034	18,517	15,972
Absorbent	7,519	8,944	6,616
Building paper	96,190	107,259	96,589
Paperboard, total	694,107	778,219	696,801
Liners	258,540	282,366	242,165
Corugating material	101,190	104,463	108,062
Container chip and filler board	27,441	29,520	28,716
Folding boxboard (for use in folding box plants only)	151,095	175,019	159,891
Set-up boxboard (for use in set-up box plants only)	37,342	47,225	42,471
Cardboard	5,732	7,149	5,431
All other paperboard	112,767	132,477	110,065
Wet machine board, total	8,894	11,179	10,942
Shoe board	3,539	4,178	4,235
Binder board	2,516	3,658	4,674
Other	2,839	3,343	2,033
Building board	125,897	109,406	100,684

* Revised.

[1] These data are estimated to give 100 percent coverage of the industry. The proportions of estimate are as follows: Fine paper, 3 percent; Special industrial, 5 percent; Sanitary, 10 percent; Tissue, 11 percent; Cardboard, 5 percent; Wet machine board, 11 percent; Building board, 5 percent, and All other grades of paper and paperboard, less than 3 percent. Data for July are preliminary and will be revised in the August report. *Source: U.S. Dept. of Commerce.*

National Safety Council, 20 North Wacker drive, Chicago 6, Ill. Booklet, "National Directory of Safety Films." Prepared by the National Safety Council in cooperation with *Business Screen Magazine.* A comprehensive listing of 403 motion pictures and slidefilms, both sound and silent, for safety education within business and industry, on the streets and highways, etc. Classified and indexed with film synopsis, type, source and availability for purchase, rental or loan. Price 25 cents.

National Aluminate Corp., 6220 West 66th place, Chicago 38, Ill. Booklet. "Chemical Removal of Soot and Slag From Boiler Furnaces." An abstract of the progress reports made by Battelle Memorial Institute, Columbus, Ohio, on work done for National Aluminate on the chemical removal of soot and slag from boiler furnaces. Gives the important and interesting features of this research problem and practical approach for its solution. Introduces Nalco SR-150, chemical soot remover.

Electric Machinery Mfg. Co., Minneapolis 13, Minn. Bulletins, "E-M Synchronous Motors." Describe bracket and pedestal-bearing types, illustrate features of fabricated steel frame, modern bearings, multilayer insulation and splash-proof, drip-proof protective construction. Application advantages and installation pictures included. Bulletin 1200-PRD-175 covers low-speed (below 500 r.p.m.). Bulletin 1100-PRD-181 covers high-speed (above 500 r.p.m.).

Tall Oil Assn., 122 East 42nd street, New York 17, N. Y. Bulletin, No. 3, "Tall Oil in Industry, Handling Tall Oil." Summarizes the experience of users of tall oil in handling the various grades—how they may best be loaded and unloaded to points of use.

D. J. Murray Mfg. Co., Wausau, Wis. Catalog Sheet, "Stainless Steel Fittings." Shows specimen stainless steel fabricated blow pipes, stock lines, standard ells and tees, and tells advantages of specially engineered stainless steel fittings.

Koppers Co., Inc., Chemical Div., Pittsburgh 19, Pa. Bulletins C-8-121, and C-7-109. Describes properties, methods and results of application of new Koppers adhesive for bonding polystyrene either to other pieces of polystyrene or to certain other solids.

Falk Corp., 3001 West Canal street, Milwaukee 8, Wis. Bulletin 3101, "The New Falk Motoreducer." Provides full information, advantages, features, selection tables, weights, dimensions, etc., by means of text and illustrations.

Bristol Co., Waterbury 91, Conn. Bulletin T838, "Bristol Presents New Developments in Recording Thermometers." Bulletin T835 gives detailed information concerning Series 500 instruments.

Equipment & Supplies

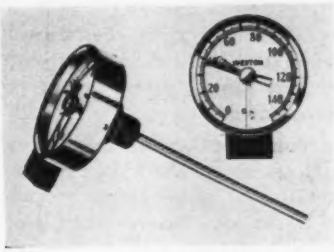
Paper Roll Truck

The Paper Roll Truck embodies unique balancing and leverage features and is designed to overcome many critical problems of hand-trucking 1500 to 3000 paper rolls. A leverage plate extended over and beyond the third wheel is provided as a safe foot-operated lever which more than doubles the

operator's strength in breaking the roll back. Once broken back, the truck utilizes an instantly adjustable tripod support which balances and carries the entire weight of the loaded roll. Telescoping support is controlled by a finger-operated ratchet mechanism which provides 11 positions in which truck can be tilted and locked. The right balance position is provided for each type and weight of roll now being handled. This same scientific balance is said to reduce unloading to a vigorous one-hand push. Upper and lower contoured steel yokes are provided to balance and cradle roll during wheeling, the upper to provide balance and to cradle roll during wheeling, the lower to protect the bottom of roll. Specifications: 56 inches high; hardwood handles steel reinforced at points of strain; tripod support of one-quarter inch wall thickness Shelby tubing, resting on leverage plate built of five-inch channel steel; wheels, 12-inch diameter, rubber molded on steel, ballbearing equipped; heavy-duty rear swivel caster, 6 inches in diameter, rubber-tired with double-race ballbearings and flame-hardened ways. For details and prices write to Melooz Mfg. Co., 4730 Avalon boulevard, Los Angeles 11, Calif.

Contact-Making Thermometer

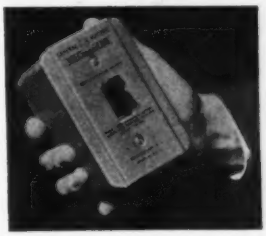
The Contact-Making Thermometer combines the features of an indicating thermometer and an alarm or control device. It can be supplied to make contact on either increasing or decreasing temperature. Instrument is described as an all-metal thermometer with adjustable contact arm mounted in the glass and bezel, as illustrated. Screw-type terminal block mounted on the periphery of case front provides for easy electrical connection. Contacts are of the magnetic type to assure positive action during making and breaking of contacts. Arm can be easily set to make contact at any temperature over the entire scale, and while contact can be broken manually after an alarm has been sounded, the contacts "break" automatically on a temperature change of about five percent. Accuracy as an indicating thermometer is said to be plus-minus one percent, and as a control device plus-minus one-and-



a-half percent of the full scale range. Available in stem length from two-and-a-half inches to 24 inches, with longer stems supplied on special order. For details and prices write to Weston Electrical Instrument Corp., 617 Frelinghuysen avenue, Newark 5, N.J.

Manual Starting Switches

The Manual Starting Switches are said to be desirable for use with fractional-hp motors driving blowers, pumps, ventilating systems, small machine tools and a wide variety of similar applications. The new line of

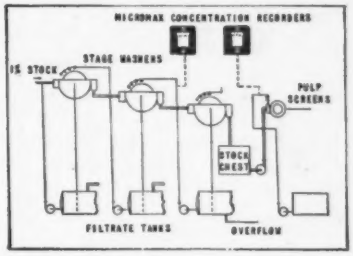


switches come in five different types: with general-purpose enclosure; without enclosure; combination unit and selector switch; with cast-iron enclosure for wet locations; similar type for dusty or hazardous locations. All types feature a molded base of moisture-resisting insulating materials which mounts and encloses mechanism and contacts. This construction serves to protect operating parts from dust and physical contact, also to direct heat concentration to the bimetallic tripping device, thus assuring quick and positive overload action. Featured also is action of the switch handle which moves to the *off* position on overload to give indication that the power has been shut off. Wheel-type movable contact is designed to clean as it rolls against the stationary contacts and to recede into recess in the base, thus effectively snuffing the arc. All parts are rust resistant.

Readily-accessible wiring terminals on top facilitate easy wiring. Screws for fastening molded back are attached to cover to prevent their being lost. For details and prices write to General Electric Co., Schenectady 5, N.Y.

Soda Concentration Recorders

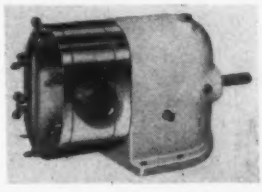
Micromax Recorders which constantly measure soda content remaining in wash water are said to be in constant use in kraft mills for checking pulp washing and soda recovery. Calibrated directly in pounds of Na_2O per gallon, they are applied to wash water lines from multi-stage washers and to the waste line to sewer. Thus they provide



a ready measurement of the efficiency of individual washers. To determine total soda losses, the concentration recorder can be supplemented with a liquid level recorder used in conjunction with a calibrated weir in the overflow line. Pounds of soda lost per hour can be computed from readings of concentration and level recorders. The recorders are said to be stable in calibration and to compensate automatically for temperature variations of the solution being tested. Installation can be made by electrician or maintenance man. For details and prices write to Leeds & Northrup Co., 4934 Stenton avenue, Philadelphia 44, Pa.

Stainless Steel Pump

Waterous sanitary stainless steel pump introduces a new line of pumps designed to eliminate all internal threads. Of rigid ballbearing construction with positive tolerance control,



the pumps are said to be easily and quickly disassembled for cleaning. For details and prices write to Waterous Co., Stainless Steel Pump Div., St. Paul, Minn.

HYCAR AMERICAN RUBBER LATEX...
imparts valuable properties to pulp and paper

HYCAR latex added directly to the pulp in the beater or head box, or used as an impregnant for paper, imparts valuable properties not otherwise readily obtained.

Tear and wet strength are considerably increased. Resistance to oils, solvents and chemicals is obtained, with retention of good aging properties. The addition of Hycar also insures excellent flex life and scuff resistance, and in thick papers prevents separation of the laminations.

Thus, better physical properties may be obtained in high grade pulp. In other cases the use of lower grade stock may be permitted because of improved physical properties obtained by the use of Hycar latex. Paper is made adaptable to fields where it is not now used.

Present and potential applications for papers of this sort range from wallpaper to insoles, from gaskets to leather replacement material, from shelf liners to packaging papers.

HYCAR latex is very easy to use. In most applications no vulcanization is required. Normal drying times are used. And HYCAR latex is an inherently safe material to handle. *No solvent system is needed.*

We would be glad to work with you on any problems relating to the use of HYCAR latex. For more information, please write Department HJ-11, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio.

Hycar
Reg. U.S. Pat. Off.
American Rubber

B. F. Goodrich Chemical Company

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SECTION OF THE

TECHNICAL ASSOCIATION
OF THE PULP AND PAPER INDUSTRY

122 E. 42nd ST., NEW YORK 17, N. Y. *Edited By* R. G. MACDONALD, *Secretary*

Flow Measurement and Control*

By W. S. Yunker[1]

Abstract

A comprehensive discussion of equipment best suited for diverse applications and conditions, with descriptions of meter types and various primary devices, and consideration of flow control problems and their instrumentation, for measurable fluids of different kinds.

Instruments, like men, must work within the laws of nature. Their satisfactory operation depends on favorable conditions. A valve cannot function efficiently without an adequate pressure drop across it. Neither can a temperature controller function properly if upsetting flow disturbances are interfering with its operation. It becomes more and more evident therefore that in process control each instrument depends to some extent on every other instrument and that all must work together as a team in order to function properly as individuals. Teamwork by instruments in process control is as necessary as teamwork by men in management.

It is easy to see therefore that the flow controller is an important instrument in any system. It can do a great deal to take the load off the other controllers. The flow controller can steady out B. t. u. demand, reduce temperature and pressure upsets to a minimum, and smooth out level surges. The work of the other process control instruments is thus simplified, leaving them to contend with only the unavoidable variations.

It is pretty hard to think of a reason for flow measurement which does not involve some sort of control. The process engineer is concerned mainly with rate of flow control. The accounting department is concerned with cost control. Other functions are distribution control, waste control, control of unauthorized use and control of operators. The purpose of measurement has a direct bearing on the type of meter being used and the way it is installed.

Meter Types

In choosing the type of metering equipment to be installed for a given service, it is well to remember that there are two main types of meters; namely, those which are designed to show the total quantity which has passed through the meter, and are appropriately called "quantity" meters; and those which show the rate of flow of the fluid and are hence called "rate" meters.

Quantity meters ordinarily give only the total flow and do not produce any indication or record of the rate of flow. Readings obtained from this type of meter may be satisfactory for bookkeeping purposes, but not as an aid to operation, since the only method of determining the rate of flow is by calculation from successive readings of total flow over a definite period of time. A meter having a chart showing the rate of flow is essential as an operating guide. This chart shows trends as well as instantaneous readings and gives a permanent record of what has been and is taking place. In addition, a rate of flow meter can be equipped with an integrator to totalize the quantity of flow giving this type of meter double usefulness.

Quantity Meters

In general, quantity meters are suitable for metering liquids or gases which are free of suspended solids providing only a total flow figure is required. Some types may be used for slushy materials like pulp. They are not suitable for metering dirty liquids unless strainers can be placed in the main line preceding the meter; nor are they suitable for metering corrosive liquids or gases.

The majority of quantity meters are of the displacement type. In operation this type of meter isolates a known quantity of fluid and carries it from inlet to out-

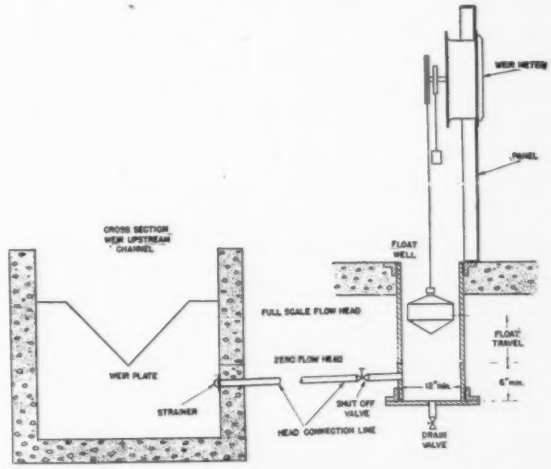

FIG. 1

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., Feb. 23-26, 1948.

[1] Sales Manager, Pulp and Paper Industries, The Foxboro Co.

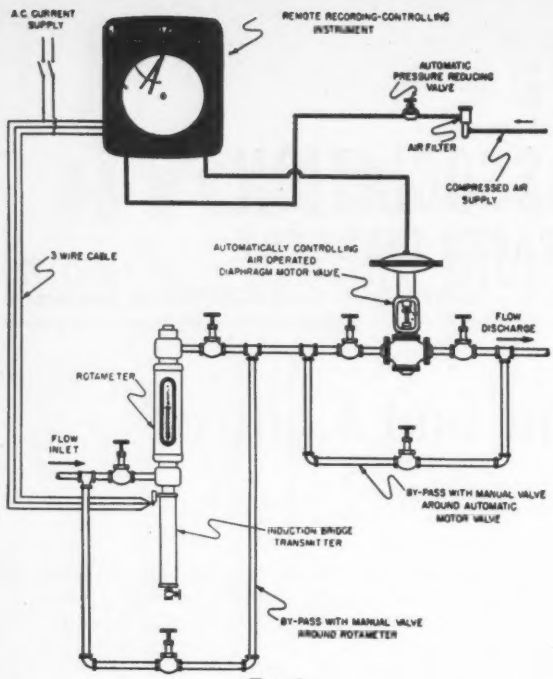

FIG. 2

let. In effect, it counts the number of these individual quantities. The meter may be constructed with cycloidal or other gear impellers, nutating disks, rotary or oscillating pistons, or diaphragm displacers with various types of valves.

Turbine type meters are similar in function to the displacement type but different in operating principle. Their impellers operate from the dynamic force and inertia of the flowing fluid.

Although usually having a wider operational range than the differential type meter, the meter body of a quantity meter contains both the primary and secondary elements and when a change in the size or capacity of a pipe line is made, the entire meter must be changed. Also, there is no direct means of determining whether or not a quantity meter has been working within its range of operating rates.

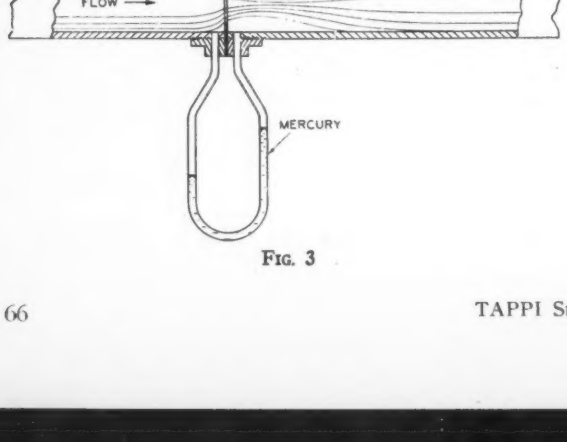

FIG. 3

In general, quantity meters do not fit into process control work because of their inability to show rate of flow. They have found limited use in the pulp and paper industry as the so-called "stock meter" used in conjunction with pulp washing, bleaching or metering systems, but even for these applications the rate meter is frequently superior except for consistencies above 3.5%.

Rate Meters

Rate meters are adaptable for every kind of liquid, gas, or steam at any pressure and temperature. The capacity is limited only by the velocity of fluid flow through the pipe line. Since the metered flow passes through the primary device only, dirt and sediment can be kept out of the meter body proper by suitable settling chambers, seals or traps, and likewise the meter body can be protected from the ill effects of most corrosive liquids and gases by suitable purging of the meter connection lines.

Variable Area-Variable Head Rate Meters

Variable area-variable head meters are widely used in measuring open flows. In these devices the area bears a definite relationship to the head, and rate of flow may be expressed as a function of head pressure only.

The weir meter is this type of device. The most common forms are the V-notch and rectangular weirs. Where high accuracy on low rates of flow plus wide rangeability is desired, the V-notch weir should be used. Sometimes space limitations make it difficult to install a V-notch weir and the simpler rectangular weir may be used. This type is satisfactory if large flows are involved, but has much less rangeability than the V-notch and loses its accuracy at low flow rates.

It is preferable to construct the weir box to such dimensions that the velocity of the fluid is negligible as it approaches the weir crest. Baffle plates may be used to smooth out the flow beyond the point where the liquid enters the weir box.

The weir (Fig. 1) can be advantageously used for handling liquids containing suspended solids in open conduits; a good example being pulp or paper mill effluent. The notched weir plate is located so that it may be cleaned easily, but strangely enough, there is little tendency for solids to hang up on the edges of the weir plate. Solids tend to be drawn into the center of the stream where they pass through the notch without touching the edges of the weir plate.

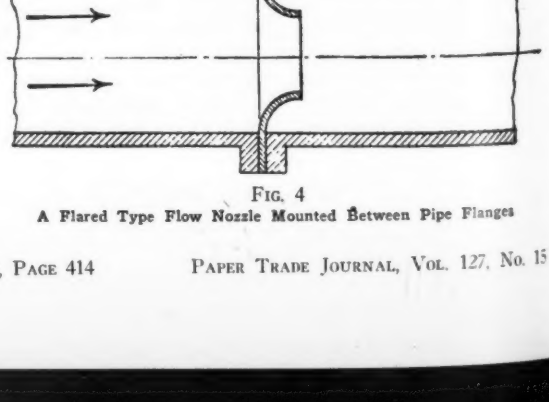

FIG. 4

A Flared Type Flow Nozzle Mounted Between Pipe Flanges

Another device for open channel handling of dirty liquids is the Venturi or Parshall flume. This consists of an entrance section with converging walls and level floor, a throat section with parallel walls and a downstream sloping floor, and an outlet section with diverging walls and a rising floor. The downstream end of the outlet section floor is made 3 inches lower than the floor level of the inlet section. The rate of flow can be determined from a single measurement of the head in the inlet section, which is made at a point about one third of the length of the section downstream from the entrance end.

Variable Area-Constant Head Rate Meters

The variable area-constant head type flow meter maintains a constant head by adjusting the opening through which the liquid flows. This may be a valve which opens or closes to maintain a constant pressure drop across it, or in the rotameter, a tapered tube carrying a float or spinner which rises or falls in the tapered tube until the area of the annular space around it is sufficient to produce a pressure drop which just balances the weight of the float.

This type of meter has a wide flow rangeability and may be compensated for wide changes in viscosity. It may be used to advantage for handling chemical fluids to bleach plants and similar services because it is particularly suited for low flows and corrosive fluids providing the fluid is not corrosive to glass. It is self-contained, but as the entire flow passes through the rotameter, process piping has to be run to suit the location of this device. This can result in an expensive and perhaps hazardous piping installation. This last difficulty can be overcome by locating the rotameter at the point of flow measurement and using either electrical or pneumatic transmission connecting to remote recording or controlling instruments. Figure 2 pictures such a hookup using electrical transmission.

Differential Type Rate Meters

The differential type meter consists of a primary device which creates a resistance to flow and a secondary device which measures the pressure drop across the primary device.

Primary Devices

Primary devices have been highly developed to meet various operating conditions. These will be discussed in the order of frequency of use.

The primary device most commonly used is the concentris flat plate, sharp edged orifice shown schematically in Figure 3. In its simplest and most familiar form, the orifice is merely a circular hole in a thin flat diaphragm that is clamped between the flanges at a joint in a pipe line so that its plane is perpendicular to the axis of the pipe and the hole is concentric with the pipe. A thicker plate is sometimes used. It is then chamfered around the hole on the outlet side so as to leave only a thin edge, while the inlet face of the plate remains flat, with a sharp 90° corner at the edge of the hole.

The concentric orifice has been the subject of extensive research and its characteristics are known for a far wider range of operating conditions than for any other type of flow measuring device. It is dependable in performance, easy to duplicate precisely, easy to make in the field, easy to install or to change. It is compact, portable, and inexpensive. Although it may be used for widely varying applications, it is most efficient when used on clean liquids or gases, moderate velocities, and relatively nonviscous flows. Steam and water applications are naturals for the concentric orifice. Flows of clear acids, alkaline liquors such as clarified green and white liquors, thin black liquor and under proper conditions, even thick black liquor may be measured with this type of plate.

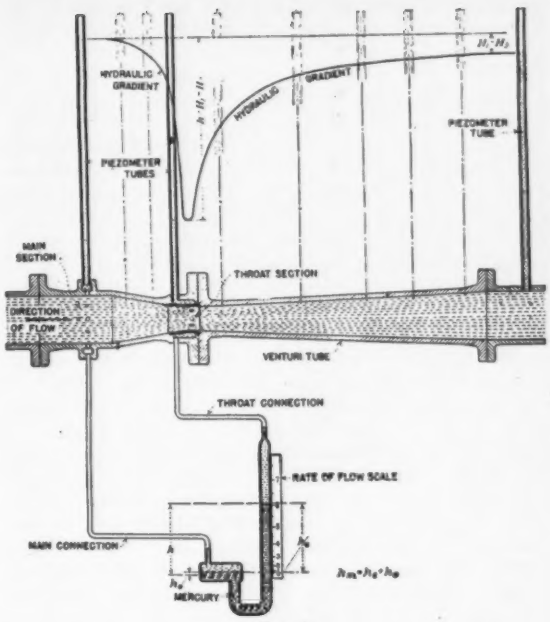

FIG. 5

The eccentric orifice plate has a circular hole bored adjacent to either the top or bottom of the pipe. If near the top, it permits the passage of vapors in a liquid without damming up ahead of the orifice. If near the bottom, it permits the passage of liquids and nonsticky solids. For sticky solids, which would lodge on the face of the plate, it has the same disadvantage as the concentric orifice.

The segmental orifice plate has an opening either adjacent to top or bottom of the pipe which is a portion of a circle intercepted by a chord. This opening permits the passage of gases or nonsticky solids. This type has somewhat the same advantage as the eccentric orifice plate. The segmental orifice may be used for satisfactorily measuring liquids carrying solids such as raw green liquor although the flow nozzle or Venturi tube is preferable.

The adjustable orifice is a highly refined gate valve built in such a way as to create a segmental orifice of variable area. This makes possible the keeping of the differential pressure within a convenient range for measurement by the recording gage, regardless of the daily or seasonal changes in the rate of fluid flow.

The flow nozzle is illustrated in Figure 4. It consists of a short cylinder with one end flared out so as to form a flange that can be clamped between pipe flanges. This flared end forms a curved entrance leading tangentially into the straight cylindrical section called the throat. The purpose of the curved entrance is to lead the fluid smoothly to the throat or measuring section so that it shall issue from the throat without contraction as a straight cylindrical jet having the same diameter as the throat. Tests indicate that the curved entrance is not extremely sensitive to exact contour. The contour should, however, be smooth and tangent to the throat section. Length and uniformity of bore of the throat section and tap location have an important effect on performance. The flow nozzle will handle velocity 50% higher than

the orifice. Pressure loss is about the same as that of an orifice designed to give the same differential at the same rate of flow.

The Venturi tube (Fig. 5) is a resistance device which combines in a single unit a short constricted portion between tapered, streamlined inlet and outlet sections. Its purpose is to accelerate the fluid and temporarily lower its static pressure. Suitable pressure connections are provided for measuring the difference in pressures between the inlet and constricted portion or throat. The streamlined outlet gives high pressure recovery which is not a characteristic of either the orifice plate or the flow nozzle. The slope, or contour of the outlet cone does not affect the coefficient of the Venturi. The characteristics of the pressure taps, however, are extremely important in this primary device because the high velocity fluid is in direct contact with the walls of the conduit at the places where pressures are measured. The Venturi tube is ideal for handling liquids containing foreign matter, like pulp, because it provides no dead spots where solids may drop out. On large lines and high velocities, the savings in pumping costs sometimes justify the larger investment and installation cost of the Venturi tube, even on clean fluids.

Most of the pressure recovery in the Venturi tube is obtained in a short section of the outlet cone near the throat where the velocity is high. A flow nozzle may be equipped with a short recovery cone which will greatly improve the pressure recovery. This, of course, necessitates tapping the throat and results in the same sensitivity to the characteristics of the pressure taps as in the Venturi tube.

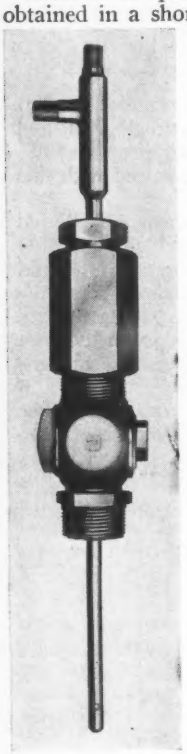

FIG. 6

The pitot tube (Fig. 6) works on the principle that when a portion of a stream of flowing fluid is stopped, that portion of its kinetic energy is converted to pressure, and this pressure is added to the normal static pressure in the pipe. The difference between this total pressure and the static pressure in the pipe is a measure of the rate of flow.

Various deviations from the standard design have been used to increase the differential. One of the most common devices is the suction static, usually a trailing opening, but often just a tap in the side of the tube 90° to the direction of flow. The use of suction statics of these types is not recommended for accurate measurement. Another method of creating a magnified differential is that of placing a small Venturi tube in the line of flow and taking the static pressure at the throat of the tube. The impact pressure is taken in the usual manner.

The utility of the pitot tube for commercial work is limited by its inflexibility. For a given size of conduit, a given type of pitot tube will create only a certain differential at a certain rate of flow. Often this differential is too low to measure with commercial instruments. Because it measures only spot velocities, the pitot tube is also extremely sensitive to flow disturbances which affect flow distribution. Furthermore, it is more subject to plugging than most primary devices.

In the pitot tube formula, the inside diameter of the conduit takes the place of the orifice diameter in the orifice meter formula. Obviously, commercial pipe is not manufactured to the close tolerances of orifice throats and using a diameter which in itself may be erroneous in the formula can only produce further error. This is another source of inaccuracy in the use of the pitot tube.

Even pipe elbows have been used to create the differential for flow measurement. The pressure at the outside of the elbow is greater than that on the inside because of the centrifugal force exerted by the fluid. The Winter-Kennedy taps which are installed on the scroll case of hydraulic turbines are an application of this principle.

Secondary Devices

A secondary device is, in all cases, some form of differential measuring mechanism. The simplest of these is a water or mercury column or U-tube. The mercury float type of instrument (Fig. 7) is an adaptation of this principle. In it a float rides upon one surface of a mercury U-tube and is connected directly to the recording pen. The chamber areas are so ratioed that the proportion of mercury travel in the float chamber is adequate to give full chart reading at the rated differential range of the instrument. Other ranges may be had by changing the ratio of the chamber areas. This type of instrument is affected less by changes in ambient temperature than any other differential meter. It is easily protected against high over-ranges and its reading may be easily and accurately damped.

The mercuryless meter, (Fig. 8) has a flexible diaphragm to which the differential pressure is applied and a spring which opposes the motion of this diaphragm. The diaphragm may be metal of soldered or welded construction or it may be moulded rubber or coated fabric. It may be replaced by a metal hydron unit.

The bell type instrument (Fig. 9) consists of a bell

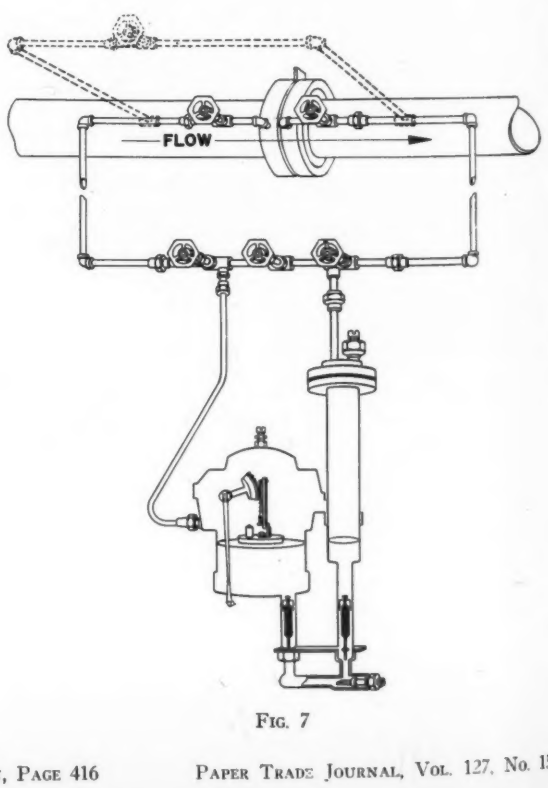

FIG. 7

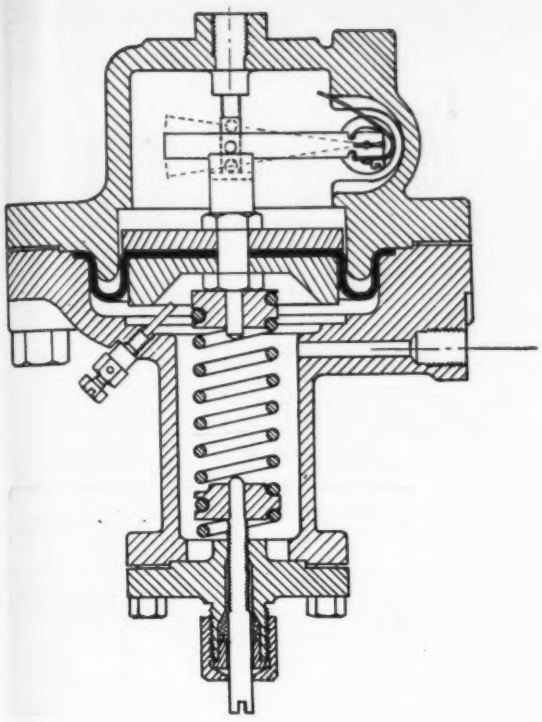

FIG. 8

partially submerged in mercury or other heavy liquid which is used as a seal. One pressure is applied under the bell, the other to the exterior of the bell, resulting in a force tending to move the bell up or down proportional to the differential pressure. This force is counterbalanced, either by change in buoyancy of the submerged metal or by a spring. The buoyancy opposed bell type, like the mercury float type, is subject to a correction for liquid on the surface of the mercury, because the change in buoyancy is a function of the difference between the density of the mercury and that of the fluid on its surface. The spring opposed bell type, like other spring types, is not subject to a correction for fluid on the surface of the mercury.

The weight balance differential gage is constructed in various types. One of the early types had a pair of straight tubes suspended from a beam balance. The shifting of mercury from one tube to the other created a weight unbalance tending to tip the beam, and this motion was restrained by a weight supported by a cam shaped in such a manner as to give the meter the desired characteristics. Another application of this principle is the ring balance meter in which the mercury is transferred in an annular chamber concentic about the center of motion.

With all of these mechanisms, it is necessary to provide some means of connection from the interior to the exterior, by torque tubes, snuffing boxes, or pressure tight bearings. In the case of the electric meter, it is possible to sense the motion of the mechanism inside the chamber by means of magnetic induction or by electric contacts.

The force balance principle is relatively new as applied to differential measurement. The differential pressure is applied to a movable partition which may be either a single diaphragm or the junction of two opposed diaphragms. The differential creates an unbalanced force tending to move the diaphragm. This motion, however, actuates a pilot valve which bleeds air pressure into, or out of, an auxiliary diaphragm until the main diaphragm is brought back to its original position. The pressure in the auxiliary diaphragm is then a measure of the differential pressure and may be used to actuate an ordinary pressure gauge.

Application of the principle of electronics to flow meter design holds forth the promise of many future improvements. The electronic principle is inherently adapted to the magnification of small differentials, easy change of range, small displacement with high torque at the pen arm, elimination of pressure tight joints, elimination of seals and purge systems, compactness in small areas to facilitate high pressure design, manufacture of special materials, and long-distance transmission.

Accuracy

The accuracy with which flow can be measured depends on three things: (1) the instrument, (2) the installation, and (3) maintenance. The purchaser has little control over the inherent accuracy of the instrument other than to purchase it from a reputable manufacturer having wide experience with flow problems. In the matter of installation, the purchaser can contribute greatly to the over-all accuracy of the job by religiously following fundamental rules and cooperating with the manufacturer in getting the best possible installation. The sustained accuracy of the installation depends almost entirely on adequate maintenance of the equipment by the purchaser.

Before leaving the subject of accuracy the point should be stressed that much of the difficulty experienced by instrument companies in computing accurate primary

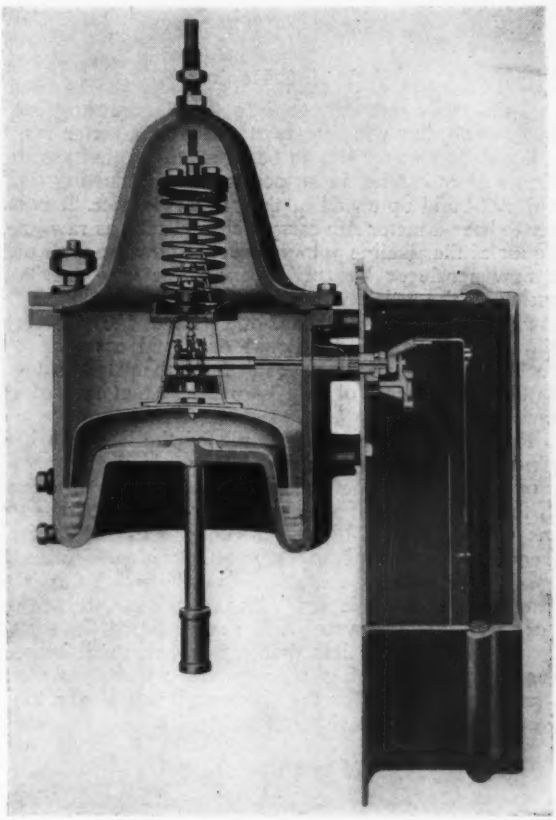

FIG. 9

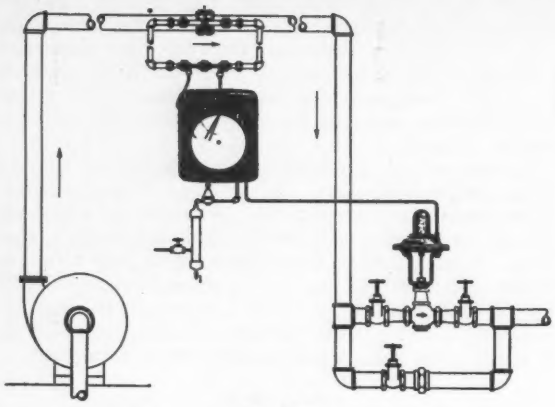

FIG. 10

device specifications for liquid flow problems is due to incomplete information regarding the specific gravity at the flowing temperature and the temperature expansion characteristics of the liquid in question. Some mills merely want a measurement of flow at the temperature of the flowing liquid. Only the specific gravity at this temperature then is required in order to compute the orifice specifications. Other mills, however, want to compute and correlate all flow figures and so want all meters to read flow corrected to some base temperature such as 60°F. or perhaps 40°C. In order to have meters read correct at a base temperature specific gravities at both the flowing and base temperatures are required for orifice calculations. If both gravities are available, the orifice calculation becomes relatively simple and the purchaser can be assured of the highest possible accuracy in the primary device.

Piping Hookup

This paper will not go into detail regarding meter installation, but will merely state that the meter run of a liquid flow meter should be so arranged that any foreign matter carried in suspension in the flowing liquid will not build up ahead of the primary device. It is better to have a meter run carry a slurry, such as raw green liquor of the alkaline pulping process, downward through a flow nozzle or Venturi tube. In this way gravity is assisting the velocity to carry the slurry along with the stream of flow. On the other hand, the meter run should carry a volatile liquid or liquid carrying gas, such as sulphite acid, upward through the primary device so that buoyancy will help keep the system free of gas accumulations.

Pressure taps should come out of the line in a horizontal direction. In a horizontal line, if the taps were brought out of the bottom, heavy material would deposit in the piping and, if they were brought out of the top, gas would lodge in the meter connections necessitating frequent bleeding of vapor traps. It is preferable, if possible, to locate the meter below the line. If it is so installed, gases or vapors which may separate or find their way into the system when any part of the system drops to a pressure less than atmospheric will be self-venting. Full opening type valves which provide a straight clear exit for the gases and vapors are to be preferred for flange shuit-off valves.

Flow Control

Good flow control depends on three things: (1) a consistent and accurate measuring system, (2) a sensitive and dependable control unit and, (3) a control valve

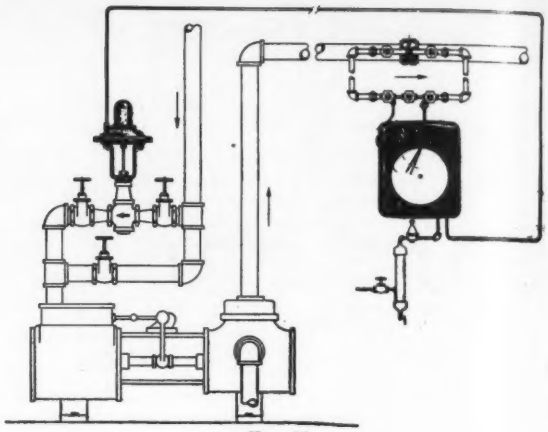

FIG. 11

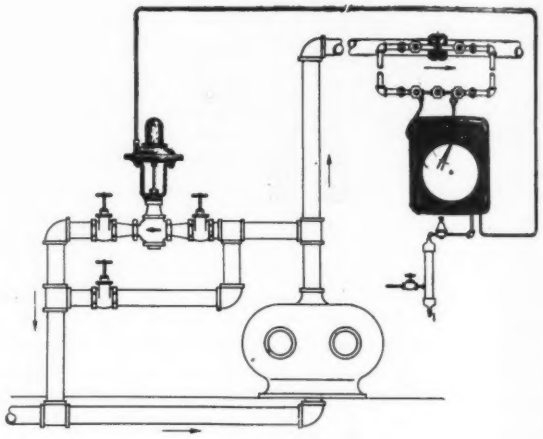

FIG. 12

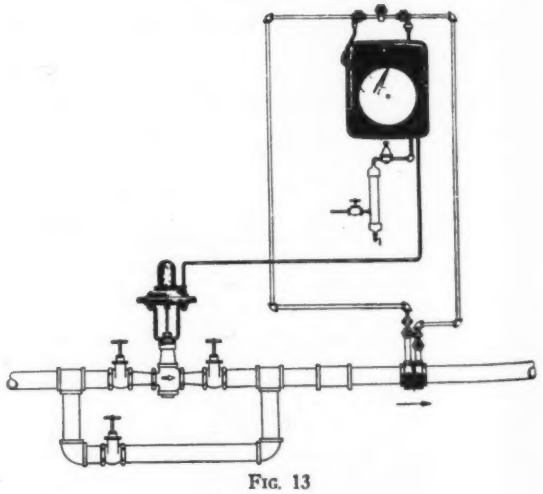

FIG. 13

designed with the correct characteristics. All three of these components are necessary to obtain the proper results. The control valve is very important and should be carefully picked for the particular job it has to do.

Basic Applications of Flow Control for Liquids

In dealing with liquids, the differential pressure across the primary device is a direct measure of flow and it is

necessary to control only the differential pressure to control the flow. Most problems in liquid flow control involve the use of pumps. Therefore, it is essential to consider the characteristics of the pump and drive. Following are basic applications for the more common types.

Figure 10 shows the primary device and control valve in the same line. This method of control is used where it is permissible to throttle the flow against line pressure. It is frequently used on centrifugal pumps and is the most common of the basic applications, insofar as the pulp and paper industry is concerned. This type of installation is used to control flows of water, acid, liquor, or pulp to various steps in the pulp and paper-making process—to pulp washers, bleaching equiment, evaporators, recausticizing systems, etc.

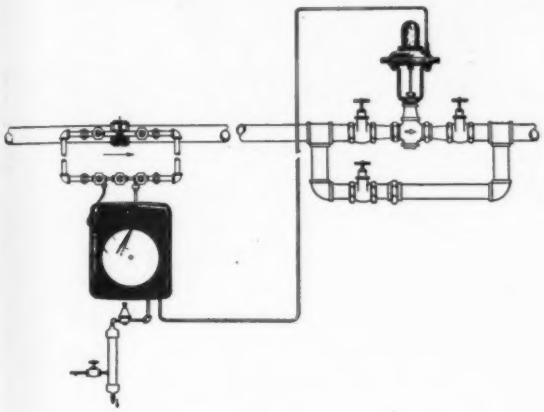

FIG. 14

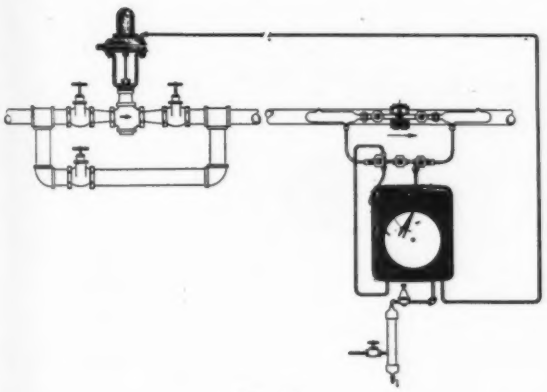

FIG. 15

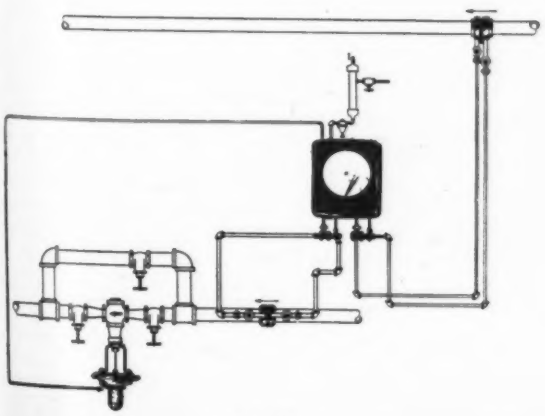

FIG. 16

Figure 11 shows the primary device in the pump discharge line and the control valve in the steam line to the pump drive. This method of control is used where it is not desirable to throttle the flow and regulation of the power source is convenient. It is generally used in reciprocating steam pumps and occasionally on steam turbine driven positive displacement pumps.

A third method of control is an adaptation of Figure 11 and utilizes existing governors. In this method, the orifice plate is in the pump discharge line and the control motor changes cut-off or position of the speed governor on a steam or gas engine, or a steam turbine. This type of control may be used to advantage on some steam engines or turbines driving paper machines.

All jobs of this type are individual in nature and full details of the installation should be submitted to Foxboro for recommendations.

Figure 12 shows the primary device in the pump discharge line and the control valve in a by-pass line to the pump suction. This method of control is used where the flow cannot be throttled and the pump speed cannot be altered. It is commonly used on positive displacement pumps. It can be used with such pumps to hold flow of pulp to consistency controller head boxes to a minimum so that overflow will not unduly dilute the pulp in storage chests.

Basic Applications of Flow Control for Compressible Fluids

In dealing with compressible fluids, a measure of the flow is a combination of the differential pressure across the orifice and the static pressure. It is necessary to control both pressures to control the flow. The following show basic applications based on three general sets of flow conditions.

Figure 13 pictures a job where the downstream pressure is constant and it is desirable to keep the flow or volume constant, irrespective of varying upstream pres-

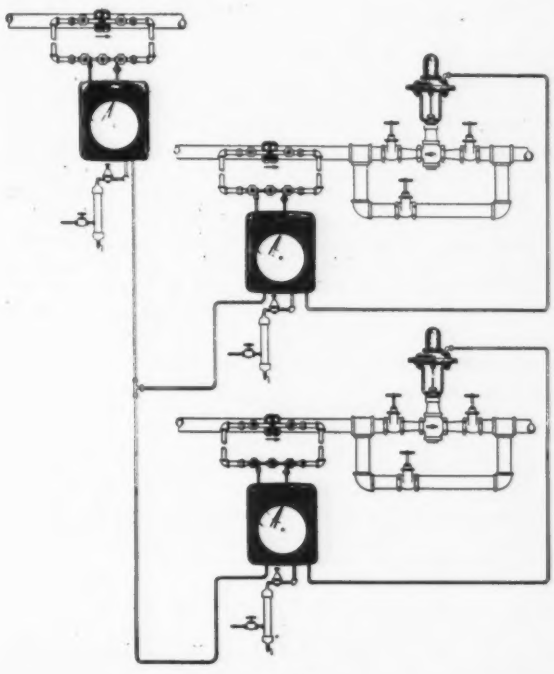

FIG. 17

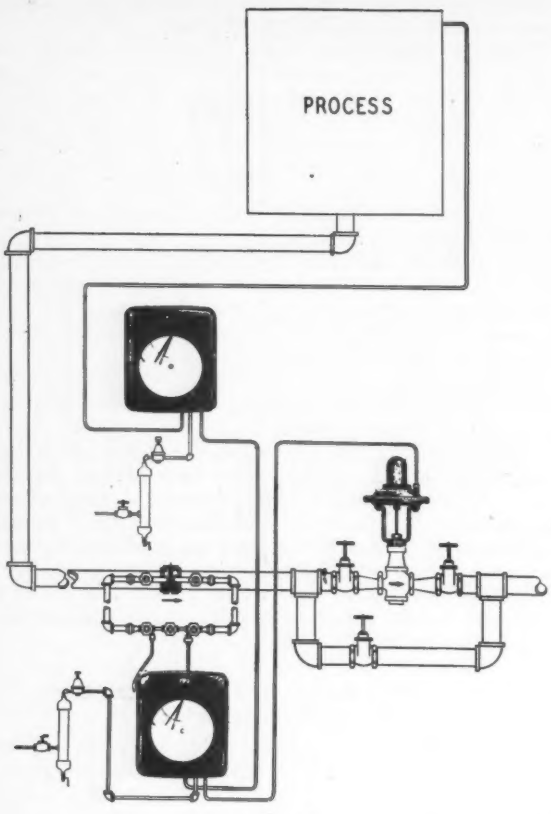

FIG. 18

sure. The control valve is placed upstream from the orifice plate. An example is the control of steam flow to a sulphite digester under direct steaming natural circulation operation.

Figure 14 shows an application where the upstream pressure is constant and it is desirable to keep the flow or volume constant irrespective of varying downstream pressure. The control valve is located downstream from the orifice plate. An example is the control of steam flow to an evaporator where the steam supply is under controlled pressure.

Figure 15 pictures a job where either or both upstream and downstream pressures may vary and it is required to control volume regardless of pressure changes. A pressure compensated flow controller is used and the control valve is installed upstream from the orifice plate. The instrument combines both differential pressure and static pressure so that the reading is in absolute volume. The control of steam to many evaporators where the pressure of the steam supply is not controlled comes under this category.

Flow Ratio Control

On processes in which the flow of two fluids should bear a definite ratio to each other and where one of them cannot be controlled, flow ratio control may be used. Figure 16 shows a setup where a flow ratio controller automtaically maintains a definite ratio between two flows by using the measurement of one flow to set the control point of the second flow. An example of this type of control is the measuring of the flow of pulp to a washing system and controlling the flow of dilution liquor at a definite ratio to give 1% consistency to the first washer.

Figure 17 shows a pneumaticset flow ratio system

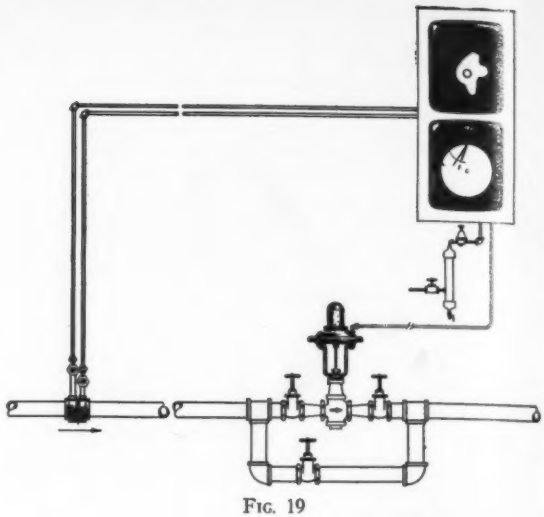

FIG. 19

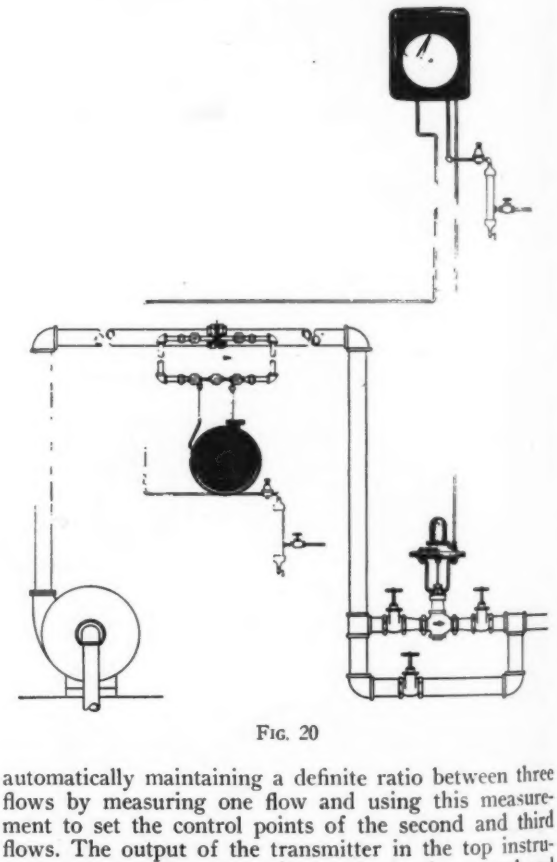

FIG. 20

automatically maintaining a definite ratio between three flows by measuring one flow and using this measurement to set the control points of the second and third flows. The output of the transmitter in the top instrument operates the pneumaticset units in the second and third instruments. These units provide the necessary adjustment to cover a wide range of ratio settings and may be used to control flows of bleach liquors, for example, at definite ratios to flow of pulp.

Pneumaticset Flow Control

Pneumaticset flow control is used where flow must be controlled to eliminate disturbances due to pressure fluctuations but where the actual flow must be varied to meet demands of other process conditions. In this system, the primary controller (temperature, pressure, level,

etc.) automatically positions the control setting of the flow controller by pneumatic transmission to a pneumaticset unit in the flow controller. Figure 18 pictures a setup where a temperature controller is setting the control point of a flow controller through pneumaticset. Evaporator control includes a good example of this type of control where the control point of the thin liquor flow controller is reset by either a level controller on the storage tank or a density controller on the 1st effect.

Flow Schedule Control

Flow schedule control is used whenever flow must be controlled according to a predetermined schedule. Figure 19 shows a typical installation such as is used to control the flow of steam to a sulphite digester when cooking with direct steam and natural circulation. A vertical link connects the cam follower in the upper instrument to the control setting mechanism in the lower instrument. The cam is rotated by its driving mechanism and determines the control point setting.

Pneumatic Transmission With Flow Control

When the point of measurement is at some distance from the point where a record is desired, a pneumatic transmission system may be used. The transmitter is located at the point of measurement and a recording controller-receiver is located at some distant point. Where desired, the controller may be located at the point of measurement and only the measurement transmitted to a remotely located recording receiver. Any number of receivers may be located at desired points on the transmission line. Figure 20 shows a pneumatic transmission hookup. Present day practice is leaning towards centralization of instruments in packaged units or control rooms and pneumatic transmission lends itself admirably to this type of installation.

Conclusion

To sum up the theory and design of most continuous process equipment is based upon the maintenance of constant material and energy balances which require constant rates of flow. When rates of flow are controlled, process control is simplified, uniform results are assured, production and quality are increased while waste is decreased.

TAPPI Meetings

In addition to the Plastics meeting, the Fundamental Research meeting and the Mechanical Pulping conference, which have already been held, three important national meetings will be held this fall as follows:

Testing Methods Conference: Mellon Institute, Pittsburgh, Pa. (October 11-14.) Room reservations should be made at the William Penn Hotel, Pittsburgh, Pa. An unusually fine program has been developed covering packaging materials, pulp testing, optical properties, nonfibrous raw materials, microscopy, structural fibrous materials, chemical methods, statistical methods and other fields of testing. Mill managers are urged to send individuals responsible for technical control to this important meeting.

Third Engineering Conference of the Pulp and Paper Industry, Statler Hotel and Westinghouse Auditorium, Buffalo, N. Y. (October 25-28.) This is rapidly becoming one of the most important conventions held by the pulp and paper industry. Every mill should send its steam plant, maintenance and construction engineers. Nearly 800 engineers attended the 1947 Conference and advance reservations indicate a very large attendance. Room reservations should be made at the Statler Hotel, Buffalo, N. Y. as soon as possible to assure convenient accommodations.

Fibrous Agricultural Residues, Peoria, Ill. (November 15-16). This meeting, which usually attracts representation of 100 per cent of the strawboard industry will deal with a number of major current problems of great importance to this branch of the industry. Room reservations should be made at the Pere Marquette Hotel, Peoria, Ill.

The following local section meetings have been scheduled:

Kalamazoo Valley Section, Columbia Hotel, Kalamazoo, Mich., October 7th at 6:30 p.m. The speaker will be Alfred H. Nadelman, director of the new pulp and paper courses at the Western Michigan College in Kalamazoo. Dr. Nadelman will report on some of the short and long term plans of this new school.

Chicago Section, Chicago Bar Association, 29 South La Salle Street, Chicago, Ill. at 6:30 p.m., September 20th. W. F. Gillespie of the Gaylord Container Corporation, Bogalusa, La., and President of TAPPI, will speak on "A Review of the Development of the Paper Industry in the South."

New England Section, Red Lion Inn, Stockbridge, Mass., October 8th. This meeting in the famous Berkshires will feature the following papers: "A Positive Solution to the Present Critical Unreliable Rag Paper-Making Fiber Situation, by Earl Brennan, The Railway Supply & Manufacturing Company, Cincinnati, Ohio. "The Present Rag Situation—A Committee Report on Foreign Troublesome Fibers and Finishes in Textile Wastes Used in Rag Paper Manufacture," by K. P. Geohegan, vice president of the Aetna Paper Company, Dayton, Ohio; and "The National Program for Stream Improvement,—Present Status of Its Need, Enforcement, Benefits, etc. as related to New England," by Russell L. Winget, National Council for Stream Improvement, New York, N. Y.

Third Midwest Quality Control Conference, Hotel Sherman, Chicago, Ill., November 4-5. Among the addresses are the following: "Quality Control—A New Chemical Engineering Tool," by George N. Cornell, A. E. Staley Mfg. Company; "Operator Interest and Cooperation in Statistical Quality Control," by A. H. Becker, U. S. Rubber Company; "Quality Control Procedures in Relation to Time Study," by R. W. Good, Robertshaw-Fulton Controls Company, and "Sampling in an Uncontrolled Process," by Carl E. Noble, Kimberly-Clark Company.

TAPPI Notes

Lloyd D. Smiley is now with the Gahagan Construction Company, 90 Broad Street, New York, N. Y. Mr. Smiley was formerly with Gahagan Byrne Associated, Cedarhurst, Md.

Herbert H. Wymore has been transferred from the Camas, Wash. mill to the Port Townsend mill of the Crown Zellerbach Corporation.

George E. Chamberlain, formerly of the Badger Paper Mills, is now research chemist for the Minnesota and Ontario Paper Company, International Falls, Minn.

Kenneth M. Grasse, formerly of the Institute of Paper Chemistry, is now chemical engineer for the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.

Richard W. Porter, formerly of Chemical & Metallurgical Engineering, is now editorial director for Paper Industry and Paper World, Chicago, Ill.

Clarke M. Williams has been transferred from the

Olympia, Wash. mill to the Hoquiam, Wash. mill of Rayonier, Inc., as chemical engineer.

Frederick W. Goetz, formerly of Dill & Collins Div., Mead Corporation, is now paper control supervisor, Gravure Division, Philadelphia Inquirer, Triangle Publications, Inc., Philadelphia, Pa.

Frank C. Vaughan, formerly of the Carthage Machine Company, is now sales manager, Pulp and Paper Mill Machinery Division, Sprout, Waldron & Company, Muncy, Pa.

Samuel Gutkin is now vice president and technical director of Falk & Company, Pittsburgh, Pa.

William R. Zwecker, consulting engineer, Chicago, Ill., has just returned from an extensive trip to Austria, France, Switzerland, Italy and Germany, where he investigated the paper manufacturing and paper machinery plants.

John H. Symes, formerly of the American Coating Mills, is now supervisor for the Waterproof-Ohio Paper Company, Middletown, Ohio.

W. G. Hartford, formerly of the U. S. Gypsum Company, is now engineer for the Ohio Boxboard Company, Rittman, Ohio.

Frank Makara, formerly of the California Research Corporation, is now a patent attorney and consulting chemist, 404 W. 115th Street, New York 25, N. Y.

Ralph N. Thompson, formerly of the Falulah Paper Company, is now in charge of the paper and coating laboratory, Calgon, Inc., 325 Fourth Ave., Pittsburgh, Pa.

Benton R. Cancell, formerly of the Powell River Company, is now general manager of manufacturing for the printing, publication and converting paper division, St. Regis Paper Company, Deferiet, N. Y.

Charles A. Southwick, Jr., formerly of the Shellmar Products Company, is now with Packaging Engineering Service, Hope, N. J.

Virgil O. Wodicka, formerly of the Ralston Purina Company, is now head of the nutrition research department, Libby, McNeill & Libby, Blue Island, Ill.

Hector Audino, formerly of the Rossotti Lithographing Company, is now an industrial consultant, 501 Madison Ave., New York 22, N. Y.

The TAPPI Pacific Section will meet on November 16th at Camas, Wash., at 2:00 p.m. There will be a panel discussion of "Slime Control." Glen King of the Central Technical and Research Department of the Crown Zellerbach Corporation will present a paper covering various aspects of this subject, board or mill experience. F. A. Soderberg of the General Dyestuff Company will present a paper on the use of organic mercury compounds in relation to slime control. John W. Appling of the Buckman Laboratories will discuss measures of evaluating slime control treatment. A representative of Wallace & Tierman, Inc. will discuss various chlorination treatments. E. J. Ordal of the University of Washington will discuss the mechanism of the kill.

Murray H. Bennett, formerly of the Stebbins Engineering & Manufacturing Company recently resigned as an official of that company to organize a new company "Chemical Linings, Inc.," with offices located at 407 Electric Building, Watertown, N. Y. This company will engage in installations of digester and accumulator linings, all types of tile constructed chests, tile linings, and special acid-proof work.

The TAPPI Lake States Section will meet at the American Legion Clubhouse, Appleton, Wis., at 6:30 p.m. Tuesday, October 12. A. E. Montgomery, vice-president of the J. O. Ross Engineering Co., and chairman of the TAPPI Drying and Ventilating Committee, will talk on "Factors Influencing Paper Machine Drying Rates."

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Arthur B. Anderson, Chief Research Chemist, Western Pine Association Research Laboratory, Portland, Oregon, a 1933 graduate of the University of Wisconsin with a Ph.D. degree.

Wilfred Arsenault, Superintendent of Paper Mill, St. Regis Paper Co., Watertown, New York.

Wallace W. Brown, Technical Supervisor, Sorg Pulp Co. Ltd., Port Mellon, B. C., Canada. Attended Auckland (New Zealand) University.

W. Kaye Lamb, Librarian, The University of British Columbia, Vancouver, B. C., Canada, a 1927 graduate of British Columbia, with an M. A. degree in 1930, and a Ph.D. degree from the University of London (England) in 1933.

John R. Fielding, Assistant to Consulting Engineer, The H. K. Ferguson Company, Cleveland, Ohio.

C. Roland McCully, Research Chemist, Pulp Division, Weyerhaeuser Timber Co., Longview, Washington, a 1935 graduate of the University of Oregon, with an M. S. degree from Oregon State College in 1937, and a Ph.D. degree from the University of Oregon in 1948.

William F. McKee, Control Superintendent, Abitibi Power & Paper Co., Ltd., Smooth Rock Falls, Ont., Canada, a 1944 graduate of the University of Toronto.

C. R. W. Morison, Industrial Fellow, Mellon Institute, Pittsburgh, Pennsylvania, a 1927 graduate of Montana State College, with an M. S. degree from Virginia Polytechnic Institute in 1930.

Sam C. Slifkin, Manager, Research and Development, Ozalid Division, General Aniline and Film Corp., Johnson City, New York, a 1942 graduate of the University of Wisconsin.

James B. Sisson, Laboratory Assistant, St. Regis Paper Co., Oswego, New York, a 1948 graduate of the New York State College of Forestry.

Dunbar G. Terry, Chemical Engineer, The Mead Corp., Chillicothe, Ohio, a 1945 graduate of Ohio State University with a Ph.D. degree.

Harold F. Zigmund, Student, New York State College of Forestry, Syracuse, New York.

Khursheed Ali, General Manager, Sirpur Paper Mills Ltd., Sipur Kaghaznagar, Hyderabad State, India, a 1933 graduate of Osmania University.

Walter F. Bachelder, Vice-President, Testing Machines, Inc., New York 18, N. Y., a 1940 graduate of Dartmouth College.

William N. Coughlin, Plant Engineer, American Coating Mills, Division of Owens-Illinois Glass Co., Elkhart, Indiana, a 1943 graduate of Purdue University.

Pekka R. Haarla, Student, New York State College of Forestry, Syracuse, New York, a 1946 graduate of College of Commerce, Helsinki.

Lingam V. Subba Rao, Student, Bethlehem, Pennsylvania, a 1948 graduate of the University of Maine.

Arthur T. Walton, Director of Research, Simpson Logging Co., Shelton, Washington, a 1940 graduate of the University of Washington.